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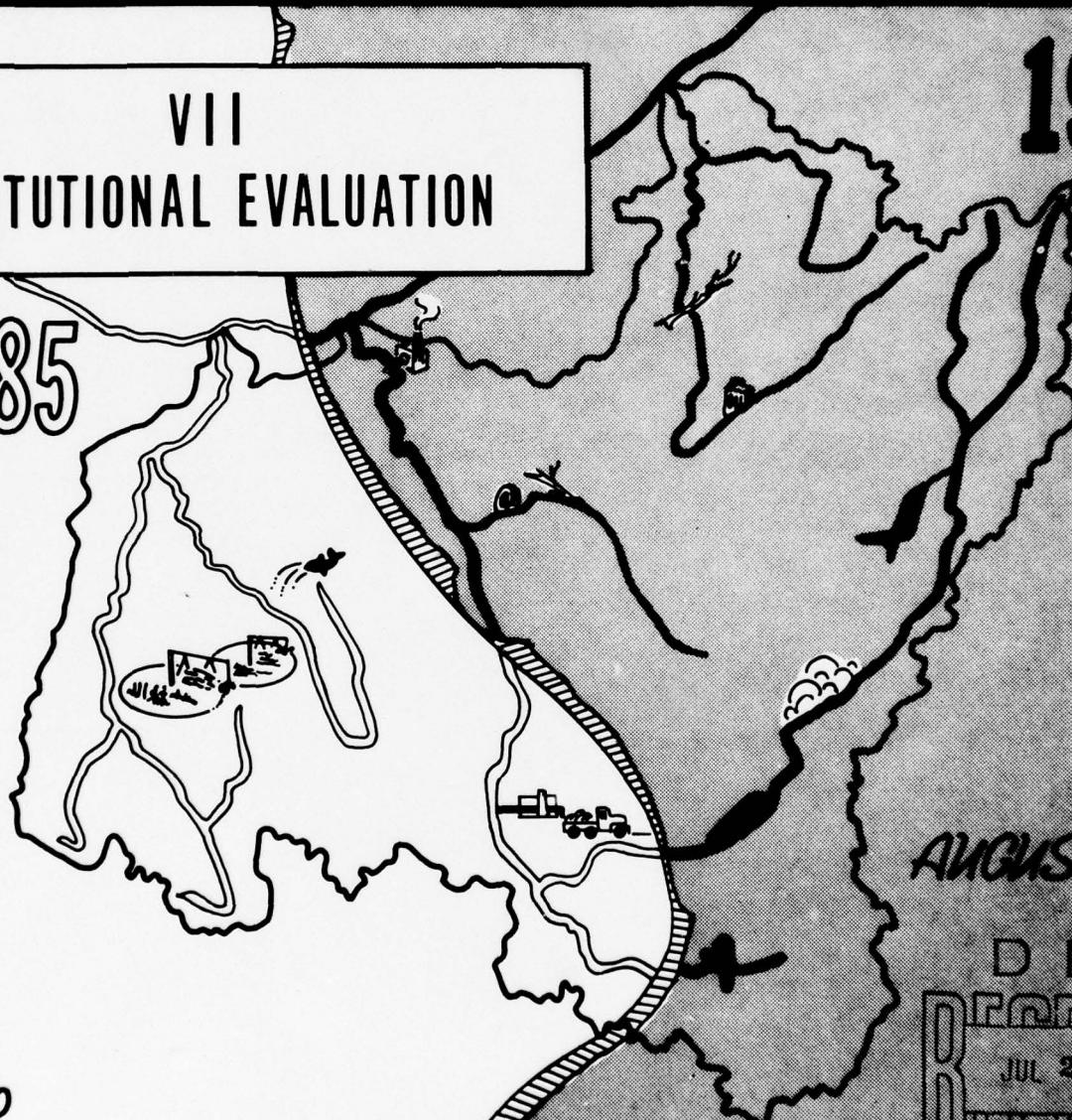
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WASTEWATER MANAGEMENT STUDY

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INSTITUTIONAL EVALUATION

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FOR

CLEVELAND - AKRON METROPOLITAN
AND
THREE RIVERS WATERSHED AREAS

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⑥ Institutional Evaluation
**CLEVELAND - AKRON METROPOLITAN AND THREE RIVERS
 WATERSHED AREAS.**

**Appendix VII.
 Institutional Evaluation.**

PREPARED FOR

Department of the Army
 Office of Chief of Engineers/Buffalo District Office

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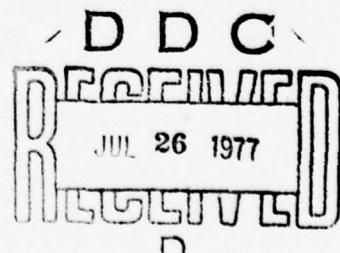
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PART I
INSTITUTIONAL ANALYSIS
SUMMARY OF INITIAL SURVEY OF INSTITUTIONAL
ARRANGEMENTS

SUMMARY OF
OVERALL INSTITUTIONAL ARRANGEMENTS
WITHIN THE CLEVELAND-AKRON
METROPOLITAN AND
THREE RIVERS WATERSHED AREA

Introduction

The following is a summary of the wastewater management institutions which exist within the Cleveland-Akron and Three Rivers Watershed Area. The summary will not attempt to discuss every institution but instead those institutions which play a significant role in wastewater management. The following types of institutions are included in the summary:

1. Federal agencies, including EPA, HUD, Farmers' Home Administration, Soil Conservation Service, Economic Development Commission (Department of Commerce) and the Army Corps of Engineers;
2. State agencies including the Ohio Environmental Protection Agency, the Department of Natural Resources, the Ohio Water Development Authority, and the Ohio Planning and Development Clearinghouse;
3. Regional A-95 agencies;
4. Regional planning commissions;
5. County planning commissions;
6. Watershed Districts;
7. County sanitary engineering departments; and
8. Municipal departments.

Where there are several similar institutions, such as County Planning Commissions, the focus will be on the generic type of institution rather than on individual agencies. Detailed description of individual agencies which are representative of each type of institution follow this summary.

Classification of Wastewater Service Organizations by Function

Planning

The planning of wastewater treatment programs is a widely shared function. Initially, the planning of a sewage system is the function of local units of government, principally municipal corporations and counties. The next level of planning is the regional level. There, local plans are coordinated with regional or county planning commissions, such as the Tri-County Planning Commission. Such regional planning commissions perform a variety of other regional planning functions including land use and economic development planning. Regional planning is also a function of watershed districts, such as the Three Rivers Watershed District, established under authority of Chapter 6105 of the Ohio Revised Code.

At the state level, wastewater management planning is the responsibility of the Ohio Environmental Protection Agency (Ohio EPA). Ohio EPA has been designated as the state agency responsible for continuous water quality planning under Section 303(e) of the Federal Water Pollution Control Act Amendments of 1972 (FWPCA). Section 303(e) planning includes designation of planning basins and segments, calculation and allocation of maximum allowable loads, identification of point and non point sources of pollution and the assessment of municipal needs.

The Ohio Department of Natural Resources (DNR) is responsible for the flood control, flood plain management, recreational, fish and wildlife aspects of water resources planning.

Construction, Operation and Maintenance

The construction, operation and maintenance of sewage treatment facilities is primarily the function of municipalities and county sanitary engineering departments. Municipal corporations are authorized to build and operate such facilities by Article XVIII, Section 3 of the Ohio Constitution and by Section 7.5.40 of the Ohio Code. Sewage treatment facilities can be constructed and operated by counties under the provisions of Chapter 6117 of the Ohio Code. In any county having a population over 100,000, the county commissions may establish a sanitary engineering department. The Summit County Sanitary Engineering Department is an example of such an entity. At the state level, the Ohio Water Development Authority (OWDA) is authorized by Chapter 6121 of the Ohio Code to build and operate wastewater treatment facilities; however, this authority has not yet been exercised.

Evaluation

Before Federal funds can become available for the construction of waste treatment facilities, plans must be evaluated by the A-95 review agencies. These agencies have been set up in response to OMB Circular A-95, which was issued to implement Title IV of the Inter-Governmental Cooperation Act of 1968. They provide a uniform system of review for federal funding agencies. The lowest level of the A-95 review process within the study area is the Northeast Ohio Areawide Coordinating Agency (NOACA), the areawide A-95 agency. NOACA sends copies of plans for comment to local agencies which would be affected by the proposal. For example, the Cuyahoga County Regional Planning Commission reviews projects for the county. At the state level, Ohio EPA is responsible for reviewing projects and setting construction grant priorities. This review is, however, coordinated with OWDA, which acts as a conduit for federal aid to local governments. Evaluation is also performed by the Ohio Planning and Development Clearinghouse (OPDCH), the State-wide A-95 agency, to insure compatibility with other planning efforts. At the federal level, EPA, HUD, the Farmers Home Administration, the Soil Conservation Service, and the Economic Development Commission are all involved in project evaluation prior to the release of funds or the issuance of permits.

Research and Development

Research and development within the study area takes place at three levels. At the regional level, county and regional planning commissions are authorized by Section 713.23 of the Ohio Revised Code to conduct experimental and demonstration projects. At the state level, the Ohio EPA participates in water pollution research and demonstrations. The Ohio Water Development Authority (OWDA) also conducts research and development projects under Section 6121.04 of the Code. At the Federal level, EPA provides financial support for water pollution research and development projects.

Regulation

The principal regulatory agency within the state is Ohio EPA, which sets and enforces water quality standards and effluent limitations. Section 303(a)(1) of the FWPCAA provides that water quality standards applicable to interstate waters that have been adopted by the state and approved by U.S. EPA prior to enactment of the FWPCAA shall remain in effect. Ohio EPA is authorized to issue the discharge permits which will be required under the provisions of the FWPCAA. If the state fails to enforce the conditions and limitations specified by a permit, U.S. EPA may bring action under the provisions of FWPCAA to insure compliance. Ohio EPA also approves plans for treatment facilities.

Where county sewer districts are organized, the Board of County Commissioners may enforce rules and regulations for the construction and use of sewers in that part of the county which is outside the boundaries of municipal corporations. The authority for such regulation is Section 2117.01 of the Ohio Revised Code.

Funding

At the federal level, four agencies are involved in providing financial support for wastewater management: EPA, HUD, Economic Development Commission (EDA), and the Farmers' Home Administration (FHA).

EPA - The Administrator of the Federal EPA is authorized by Section 105 of the FWPCAA to make grants, not to exceed 75% of the costs, to assist any State, municipality, intermunicipality or interstate agency in developing any project that will demonstrate a new or improved method of preventing or eliminating the discharge of pollutants into any waters from sewers carrying stormwater or stormwater and pollutants or assist in the development of any project that will demonstrate advanced waste treatment and water purification methods or new or improved methods of joint treatment for municipal and industrial wastes. Section 106 of the 1972 Amendments permits the Administrator of the EPA to pay to either a State or interstate agency the reasonable costs of developing and carrying out their pollution control program. Subsection 201(g)(1) authorizes EPA grants for the construction of publicly owned treatment works and subsection 202(a) provides that the Federal share shall be 75% of the construction costs for projects initiated after June 30, 1971. Section 206 authorizes increased Federal assistance for projects initiated before June 30, 1971. Where the construction was initiated after June 30, 1966 but before July 1, 1972, Federal assistance may be increased by to 55% of the construction costs, if certain requirements are fulfilled. Construction initiated during the period between June 30, 1956 and June 30, 1966 could be eligible for increased Federal assistance up to 30% of the construction costs, if certain requirements are fulfilled. Section 208 provides funds for areawide wastewater management planning.

HUD - Until FY 74, HUD provided funds for water and sewer construction projects, but not for treatment facilities. The federal share can range as high as 90% in the case of small communities. HUD programs have emphasized the needs of urban areas and would not pay for household connections, collection laterals or normal repair and maintenance costs. This program has not been funded in FY 74.

EDA - EDA administers assistance programs for single and multi-county development areas. EDA grants and loans are designed to assist community economic development programs and projects must be within an overall Economic Development Plan Area. EDA provides grants, loans and technical assistance.

FHA - FHA provides assistance for rural water and waste disposal systems, including sewer lines and treatment plants. The matching grant may be awarded to a public, quasi-public, or non-profit body for service to rural communities. The funding capabilities of state, regional, and local agencies will be discussed below.

Relationships Between Organizations Performing the Same Function

Planning

General cooperation and the exchange of ideas are prevalent between various planning agencies in the study area. Relationships between Ohio EPA and municipalities and counties within the area are based on the fact that local plans must comply with state water quality standards and that Ohio EPA determines funding priorities. There are also relationships between municipalities and county or regional planning commissions based upon the municipalities' membership on the planning commissions.

Construction, Operation and Maintenance

Under Article XVIII, Section 4 of the Ohio Constitution, municipalities may operate their own treatment facilities or contract with another political subdivision for the purchase of such service. Many municipalities have exercised the later option, thus establishing contractual relationships with other municipalities or with counties. Much of Cuyahoga County is served by the Cleveland Regional Sewer District formed under the provisions of Chapter 6119 of the Ohio Code.

Evaluation

There is a formal structural relationship between agencies involved in the A-95 review process. After review by affected local agencies, NOACA submits applications for federal funds and project plans to OPDCH to insure areawide and statewide review. The applications are then forwarded by OPDCH to the appropriate federal agencies.

Regulation

There is a relationship between Ohio EPA and U.S. EPA, as U.S. EPA must approve state water quality standards applying to interstate waters and plans developed pursuant to the State's water quality planning process. Coordination between Ohio EPA and County Sanitary Engineering Departments occurs because county regulations must comply with state law.

Summary of Cooperative Arrangements Between Planning and Management Organizations

At the local level, there is some coordination horizontally between municipalities. The most common example of such cooperation is where one municipality provides treatment to another municipality on a contractual basis. Until the Cleveland Regional Sewer District was organized, Cleveland had no way of controlling the amount of sewage flowing into the city's treatment plant from the suburbs.

There are cooperative arrangements between municipalities and regional planning agencies, such as the Tri-County Regional Planning Commission and the Cuyahoga Regional Planning Commission. Although planning commissions are organized by groups of counties or municipal corporations, the regional planning bodies have not authority to require that local plans conform to regional plans. The A-95 review agencies can require local plans to conform to regional and state plans because approval by the A-95 agencies is necessary if the local governments are to receive federal funds. There is also cooperation between local management organizations and ODOH because local plans must comply with state water quality standards.

Description of Geographical Overlap of Agencies

Areas Without Present or Planned Wastewater Treatment

Several sparsely settled sections of the study area are without present or committed sewer service. There are also small settlements and trailer parks throughout the seven county area which have no service.

Summary of Functional Overlap in Same Geographic Area

At the regional level, there is considerable overlap among different planning agencies. The following chart shows these overlaps:

County	3 Rivers Watershed District	NOACA	Tri County Regional Planning Commission
Cuyahoga	X	X	
Lake	X	X	
Geauga	X	X	
Lorain	X	X	
Medina	X	X	X
Summit	X	X	X
Portage	X	X	X
Stark	X		

Other than among planning agencies, there is very little functional overlap in the same geographic area. Municipalities construct and operate most of the area's treatment facilities and are limited in jurisdiction to the area within their boundaries. There are no instances of two agencies constructing or operating facilities within the same political subdivision.

Summary of Legal and Administrative Restrictions

Planning. Local planning activities are restricted in several ways. Plans must be approved by Ohio EPA to insure compliance with state water quality standards. Plans also must be evaluated by the A-95 clearinghouses before federal funds can become available. At the regional level, planning agencies, such as the Tri-County Regional Planning Commission, are restricted by a lack of implementation or enforcement powers. The Commission cannot compel a member municipality to plan in accordance with the regional plan. In addition, such planning agencies are dependent upon members for their normal operating expenses.

Construction, Operation and Maintenance. A variety of legal and administrative constraints are imposed upon counties and municipalities building and operating treatment facilities. Plans and construction must be approved by Ohio EPA and local governments must also obtain discharge permits from Ohio EPA. Furthermore, any county or municipality seeking federal funds must submit copies of its plans to the A-95 review agencies. Other financial restrictions on the construction and operation of treatment facilities will be discussed below.

Evaluation. NOACA, the regional A-95 agency, has only recommendatory powers and is also dependent upon its members for revenue. The State-Wide Clearinghouse (OPDCH) has no funding authority and only a four-man staff. Furthermore, the agency has only 30 days for review of municipal applications and 45 days for applications from state agencies.

Research and Development. The only restriction on the wastewater research and development activities of agencies operating within the study area would be financial.

Regulation. Ohio EPA is constrained by the fact that a compliance order can be enforced only to the extent of the offender's financial capability. Also, water quality standards and implementation plans meet U.S. EPA approval.

Programmed Wastewater Treatment Facilities

With the exception of a few cities, where future industrial and residential growth is limited, the counties and municipalities within the study area have either planned or are in the process of building additional treatment facilities. The variety of construction activity either planned or under way includes new treatment plants, expanded or improved plants, and new or improved collection systems. For example, the Cleveland Regional Sewer District plans to build a new Westerly treatment plant, to increase the capacity of its Southerly plant, and to build five new interceptor lines. Table A-4-1 in Appendix III indicates a tabulation of existing plant values and expansion plans. In many cases accurate figures of outstanding indebtedness are not available, since the auditors debt figures often include debt on sewers, pumping stations and other facilities as well as treatment works.

Summary of Future Plans of All Organizations

It appears that, for the present, wastewater management agencies plan to work with the existing system. However, there are the beginnings of a movement towards regionalism within the study area. There is a general feeling among persons interviewed that a regional approach to sewage treatment would be more economical and efficient. In addition, some municipalities feel that federal or state action is necessary in order to solve wastewater problems. The Cuyahoga County Court of Common Pleas initiated a step towards regionalism when it ordered the County Commissioners to petition the court under Section 6119.02 of the Ohio Revised Code to organize a regional sewer district. This is the first time a regional sewer district has been organized under Chapter 6119 within the study area. Chapter 6119 provides that any area situated in any

unincorporated part of one or more contiguous counties or in one or more municipal corporations, or both, may be organized as a regional water and sewer district. The district may provide for sewage treatment within and without the district.

The Cleveland Regional Sewer District is headed by a seven-member board of trustees. Three are appointed by the Mayor of Cleveland, two by the Cuyahoga County commissioners and two by the governor. The district has jurisdiction over Cleveland and all political subdivisions within Cuyahoga County either served or planned to be served by Cleveland. Cleveland's treatment facilities have been transferred to the district, but are being operated by the city under a contractual arrangement.

Another step towards regionalization will be the recommendations of the Northeast Ohio water development plan being prepared by the Northeast Office of DNR. One of the principal recommendations of the plan will be that water and sewage systems should be regionalized where possible. Regionalization is also encouraged by Section 208 of FWPCAA which provides for areawide waste treatment management in areas where urban-industrial concentrations or other factors have caused substantial water quality control problems.

Summary of Financial Aspects of the Area

At the local level, there are two general types of financial problems; operation and maintenance expenses and funding capital improvements. Most county and municipal operation and maintenance expenses are paid with funds collected through user charges. As a general rule, the user charge is based upon the amount of water flowing onto a user's property. For example, the rate in Chagrin Falls is 75% of the water bill plus a \$1.50 per month service charge. Where one municipality treats another's sewage on a contractual basis, the servicing municipality may either bill the other municipality directly (this is commonly referred to as a "master meter" system), or bill the residents of the other municipality. Under Sec. 729.52 of the Ohio Revised Code, monies received by municipal corporations from user charges must be deposited in a sewer fund. Such monies can be used for operation and maintenance expenses, for the construction of interceptors, for payment of a debt used to construct sewers, but not for extending the system to unsewered areas.

Capital improvements are financed in a variety of ways. At the present time, OWDA will finance the total capital cost of facilities which U.S. EPA has approved for funding. OWDA then collects 75% of costs from the federal government and is reimbursed by local governments for the remaining 25%.

Other sources of capital are local revenue and general obligation bonds authorized by Article XVII, Section 12 of the Ohio Constitution and Chapter 133 of the Ohio Revised Code. Payment of bonded indebtedness is financed by user charges, money from general taxes and by assessments. Where a political subdivision contracts to provide sewage treatment to another subdivision, the contract may divide the capital costs between the subdivisions. For example, the contract between Chagrin Falls and Geauga County specifies that the county will pay 22% of the cost of additional facilities.

Regional planning agencies, such as the Tri-County Planning Commission, are dependent upon members for financial support and have no independent source of revenue. NOACA also depends upon annual dues paid by members and receives planning grants from HUD.

State agencies are funded through the state budget. OPDCH, which is supported entirely by federal funds, is an exception.

Manpower Capacity

Municipalities within the study area are faced with two basic problems in staffing sewage treatment plants: a lack of funds and a scarcity of trained plant operators. Of these two problems, the need for additional funds appears to be the most severe problem. There is a general absence of any training programs, although one or two municipalities within the study area do have programs. As more modern plants with more complex treatment processes are constructed, the need for trained personnel will probably become more severe. There is no overall plan for expansion of manpower capacity. However, manpower shortages should be mitigated by Section 104 of FWPCAA, which provides training grants.

Planning and design work at the local level is generally done either by county or city engineers or by outside consulting firms. While there does not appear to be any particular problem with planning and design manpower at the local level, the regional planning agencies would like to hire additional planners.

Other Information

A discussion of a sample of some of the Wastewater Management agencies within the study area is included in Part II of this appendix.

The Northeast District of ODOH indicates that within the study area there are approximately 1,500-2,000 trailer parks, small housing developments, industrial parks, and commercial establishments operating private wastewater treatment facilities. Plans for such facilities must be approved by ODOH under the provisions of Chapter 6112 of the Ohio Code and plants with a capacity of 25,000 gpd or more must have a licensed operator.

PART II
INDIVIDUAL STATUS REPORTS
ON
INSTITUTIONS IN THE CLEVELAND-AKRON
METROPOLITAN AND THREE RIVERS
WATERSHED AREA

CITY OF CUYAHOGA FALLS

Wastewater Treatment Functions: The City of Cuyahoga Falls, through its Service Department and Department of Water Utilities, owns, operates, and maintains a sanitary and storm sewer system which conducts wastewater to Akron's treatment plant. The City has no treatment plant of its own.

Other Functions: Cuyahoga Falls is involved in a number of areas related to wastewater management. The city owns and operates a drinking water supply system, is involved in flood plain management, and has taken an active role in the restoration of the Cuyahoga River (Cuyahoga River Reclamation Commission).

Geographical Jurisdiction: The Department of Water Utilities provides sewer service to residents living within the city limits. The area of service was determined by administrative decision. Water is supplied to the residents of Cuyahoga Falls, the villages of Silver Lake and Monroe Falls, and to individual customers in Northampton Township and the City of Stow.

Date of Organization's Creation: Cuyahoga Falls became a city in 1920. Article XVIII, Section 4 of the state constitution gives a city the authority to operate a sewer system and to contract with another city for the purchase of sewage treatment service.

Change In Responsibilities: Cuyahoga Falls operated its own treatment plant until 1958, when it began sending its wastewater to Akron for treatment.

Legal and Administrative Constraints: Cuyahoga Falls has no real control over the rates charged by Akron for treatment of city's wastewater. Under Section 3701.18 of the Ohio Revised Code, the city's sewer plans must be approved by the Ohio EPA to insure that state health standards are met. Plans must also be approved by the City Council.

Relationships With Other Organizations: On the Federal level, Cuyahoga Falls has applied to HUD for a grant to help pay for the cost of constructing new sewers. As part of the A-95 review process, the Ohio Statewide Clearinghouse (OPDCH), NOACA, and the Tri-County Regional Planning Commission must approve of Cuyahoga Falls' applications for Federal aid to insure that the city's plans are compatible with other local and regional plans. Locally, the city has a contractual arrangement with Akron for treatment of the city's wastewater and the city also sells drinking water to the villages of Silver Lake and Monroe Falls and to individual customers in Northampton Township and Stow.

The Cuyahoga Falls Service and Water Utilities Departments work informally with the Summit County Sanitary Engineers. The city also has a close working relationship with the Tri-County Regional Planning Commission, the Ohio Department of Natural Resources, the Three Rivers Watershed District, the Cuyahoga River Reclamation Commission and local communities. Cuyahoga Falls has also had a role in developing the Northeast Ohio Water Development Plan.

Present Programs: Cuyahoga Falls operates and maintains a system of storm and sanitary sewers which conducts the city's wastewater to Akron's treatment plant. The city's sewers empty into a main trunk line paralleling the Cuyahoga River and into the County Mud Brook Interceptor, which discharges into a large outfall sewer leading to the Akron treatment plant. Because the city is almost completely built up, no great increase in the flow of industrial or residential wastewater is foreseen.

Future Plans and Programs: Cuyahoga Falls plans to construct sewer lines in the remaining section of the city using septic tanks. The city is awaiting funds needed to begin construction. The city also has plans to improve the quality of the Cuyahoga River.

Financial Capability: Cuyahoga Falls' sewage is metered at the two points where it enters Akron's system. For sewage conveyed by the trunk sewer paralleling the Cuyahoga River, Cuyahoga Falls pays Akron \$156.37 per million gallons. For sewage conveyed by the Mud Brook Interceptor, the city pays Summit County \$160.70 per million gallons. The county in turn pays Akron for treatment service. The Department of Water Utilities receives no money from the tax fund. Operation and maintenance costs and a portion of the cost of new sewer lines are financed by user charges. Akron's rates for sewage treatment service have increased over the years and Cuyahoga Falls' user charges have risen accordingly. The current user charge is 120% of the water bill. The Department has operated at a slight deficit over the years, but the rate increase in January 1971 should alleviate the situation for a time.

Cuyahoga Falls may issue bonds to finance the construction of new sewer lines. Loans (70% repayable) are available from OWDA for the construction of trunk lines. The city has applied to HUD for a \$1 million grant to finance new sewer lines.

Cuyahoga Falls joined with Summit County in financing construction of the Mud Brook Interceptor. The city has issued notes for \$775,000 and plans to issue bonds when the final determination of the city's share is made. Cuyahoga Falls will use revenue from user charges to pay off the debt.

Manpower Situation: The Sewers Division employs 2 full-time professionals and 15 maintenance workers. The staff is at full capacity, but no staff expansion is expected in the near future. The city also hires consultants to design sewer plans and the city's Engineering Division assists with the planning and construction of new sewers.

Other Important Information: Cuyahoga Falls is determined to clean up the Cuyahoga River and to keep it clean. The city has informed and spirited citizens and is prepared to act alone if the Federal and state governments do not act. The city would like the Corps of Engineers to dredge the river within the city limits. It is felt that a regional approach to wastewater is logical and the Service Director and Superintendent of Water Utilities expressed the opinion that there should be less study and more action with regard to water resource management.

CITY OF AKRON

Wastewater Treatment Functions: The City of Akron owns, operates and maintains a sewage treatment plant and an appurtenant sewage collection system.

Other Functions: The city also owns, operates and maintains a water supply system consisting of four reservoirs, a treatment plant, and distribution lines. The growth of urban development is planned and regulated through zoning by the city.

Geographical Jurisdiction: The sewage treatment system serves the City of Akron (as defined by the City Charter), Cuyahoga Falls, Mogadore, Lakemore, and some unincorporated areas in Summit County. The area served is about 75 square miles and has a population of 350,000.

Date of Organization's creation: The original treatment plant was constructed in 1917 under authority of Article XVIII, Section 4 of the Ohio Constitution. The plant was built in response to public demands and orders from the Ohio Department of Health.

Legal and Administrative Constraints: Under Section 3701.18 of the Ohio Revised Code, all plans for altering sewage treatment facilities must be approved by the Ohio EPA. The city is also required by Section 6111.04 of the code to obtain a permit from Ohio EPA to discharge wastes into waters of the state. Akron is prohibited from diverting water from the Great Lakes Basin to the Ohio River Basin. By a treaty between the U.S. and Canada, signed in 1909, diversions must be approved by the International Joint Commission.

Relationships With Other Organizations: At the state level, the city has contact with the Ohio EPA which regulates the city's sewage system. Akron can obtain loans (70% repayable) from OWDA to finance new facilities and funds from EPA and HUD are channeled through OWDA. Before receiving Federal aid, the city's plans must be approved by NOACA and the State-wide Clearinghouse as part of the A-95 review process. Locally, the city has contractual relationships with the cities to which it supplies sewage treatment.

Present and Future Plans and Programs: The city owns and operates a sewage treatment plant and an appurtenant collection system. The plant provides primary and secondary treatment. At the present time, a \$300,000 study is underway to determine how Akron will meet state and Federal water quality standards.

Financial Capability: The total cost of all existing wastewater facilities is \$26 million. In 1971, the debt service on a bonded indebtedness of \$8 million was \$1.3 million. No new facilities are being constructed at the present and there are no immediate plans for additional facilities other than a new laboratory. The annual operation and maintenance costs are financed by user fees established pursuant to Chapter 533 of the city code. Operation costs for 1970 were \$2.8 million.

Manpower Situation: Akron employ a staff of approximately 220 to operate the city's sewage treatment plant and collection system. At the present time, there are 13 staff vacancies due to a freeze on hiring and the unavailability of qualified personnel particularly at the professional and upper management levels.

Changes in Institutional Factors: The city may supply water on a county-wide basis.

Other Important Information: Authorities interviewed feel that wastewater management problems can best be handled on a regional basis.

Cleveland Regional Sewer District

Wastewater Treatment Functions: The Cleveland Regional Sewer District (CRSD) owns, operates, and maintains three wastewater treatment plants and appurtenant sewer lines and interceptors. The district has overall control over wastewater collection systems within its jurisdiction, is responsible for uniform construction of facilities and regulates discharge into the system.

Other Functions: The CRSD has no function other than wastewater management.

Geographical Jurisdiction: The district has jurisdiction over the City of Cleveland and all political subdivisions in Cuyahoga County either served or planned to be served by the City of Cleveland as of June, 1972. The district is composed of two sub districts, one consisting of the City of Cleveland, and the other consisting of the areas outside of the city in Cuyahoga County. Other municipal corporations may join the district subject to the approval of the Board of Trustees.

Date of Organization's Creation: The district was created under Chapter 6119 of the Ohio Code in June, 1972, pursuant to an order of the Cuyahoga County Common Pleas Court. The court order was the result of the inability of Cleveland and its surrounding suburbs to effectively solve their wastewater management problems. The City of Cleveland had been under pressure from U.S. EPA and the state to comply with water quality standards. However, Cleveland lacked legal authority to control an increasing volume of sewage from the suburbs. This led to court orders which practically eliminated construction in Cleveland and Cuyahoga County. Furthermore, the suburban areas believed they should have a voice in setting the user fee rates charged by the city. The court order was designed to solve these problems by creating a single government agency with authority to control, plan, finance and operate a regional treatment system.

Legal and Administrative Constraints: Under section 3701.18 of the Ohio Code, all plans for constructing or altering treatment works must be approved by Ohio EPA. The district is also required to obtain a permit from Ohio EPA to discharge wastes into the water of the state. The discharge of effluents such as phosphates into Lake Erie is also controlled by the provisions of the Great Lakes Water Quality Agreement signed by the United States and Canada on April 15, 1972.

Relationships With Other Organizations: At the federal level, CRSD had contact with U.S. EPA, which approves and enforces water quality standards and effluent limitations. U.S. EPA is also responsible for the federal water pollution grant program. The discharge of effluents, such as phosphates, into Lake Erie is also controlled by the provisions of the Great Lakes Water Quality Agreement signed by the United States and Canada on April 15, 1972. At the state level, the district must approve of wastewater treatment plant construction and which issues permits for the discharge of effluent into waters of the state. Also, the district can receive loans from OWDA to finance new treatment facilities. As part of the A-95 review process, CRSD's plans for new facilities are reviewed by OPDCA and NOACA. Locally, the district has a close relationship with Cleveland and the 31 neighboring communities which comprise the district. CRCD also has informal contacts with the Ohio DNR, the Cuyahoga County Sanitary Engineer and the Cuyahoga County Regional Planning Commission.

Present Programs: The district operates three treatment plants which were owned and operated by the City of Cleveland prior to formation of the district. Sludge from the easterly and westerly plants is pumped to the southerly plant for incineration. As the result of recent construction, the capacity of the easterly plant has been enlarged and the plant now provides secondary treatment. The district also owns and operates a sewage collection system. However, responsibility for financing and constructing local systems remains with local political subdivisions.

Future Plans and Programs: The district plans to build 5 new interceptors and a control system for stormwater runoff. In addition, an ongoing construction program will completely replace the westerly plant by 1975 and the capacity of the southerly plant will be increased from 100 MGD to 200 MGD by 1977. The district also plans to build a pilot tertiary treatment facility at the easterly plant. This facility will be used as a basis for designing a future full-scale tertiary treatment system.

Financial Capacity. Regional sewer districts are authorized by Chapter 6119 of the Ohio Code to make loans to all political subdivisions within the district, and to issue bonds and notes. Districts are also authorized to levy ad valorem taxes, special assessments and user charges. A referendum is required only when taxes are used to pay off bonded debt. The CRSD charges two different user fee rates. Users in the suburban subdistrict pay a higher rate than users in the Cleveland subdistrict in order to compensate the City of Cleveland for the facilities which it turned over to the district.

CUYAHOGA COUNTY REGIONAL PLANNING COMMISSION

Wastewater Treatment Functions: The Commission is a comprehensive regional planning agency and as such, it conducts studies and plans in the area of wastewater management. The Commission also serves as an A-95 regional (county-wide) clearinghouse and reviews plans for treatment facilities submitted by local applicants for Federal funds.

Other Functions: As a planning body, the Commission conducts studies in a variety of areas including water supply, housing, land use, capital improvement, and solid waste. In its role as a subregional clearinghouse, the RPC reviews all types of project plans submitted by applicants for Federal funding.

Geographical Jurisdiction: The Commission's jurisdiction covers Cuyahoga County and includes 33 cities and 21 villages. By law, the RPC may join with other counties to form a joint planning council. The jurisdiction was established by administrative decision.

Date of Organizations Creation: The RPC was created in 1947 under the provisions of Section 713.21 - 713.27 of the Ohio Revised Code.

Change in Responsibilities: In May, 1971, the Commission became a sub-regional clearinghouse under the A-95 review process. This function was delegated to the RPC by the Northeastern Ohio Areawide Coordinating Agency (NOACA).

Legal and Administrative Constraints: The Commission has no formal enforcement power. It cannot compel a member municipality to accept its recommendation for a regional plan or require members to conform projects to the regional plan.

Relationships With Other Organizations: On the Federal level, the RPC can apply for planning grants for HUD and EPA and it also works closely with HUD in the administration of 701 programs. At the state level, the Commission receives planning assistance from the works with Ohio Department of Development. Locally, the Commission reviews projects which do not extend beyond county lines and works with municipalities and the Cuyahoga County Commissioners in the development of plans and programs. The RPC relies upon the Cuyahoga County Engineer and Sanitary Engineer for technical assistance. The Commission also has an informal working relationship with the Ohio EPA. Provisions have been made for citizen participation in Commission activities.

Present and Future Plans and Programs: At present the Commission devotes about 10% of its time to wastewater treatment problems. It has recently completed a study design for a regional sewer and water plan for Cuyahoga County and is now awaiting funds necessary to carry out the actual study. The Commission is or soon will be involved in studies involving land use, solid wastes, housing, and capital improvements. As a regional clearinghouse, the RPC receives copies of planned projects from applicants for Federal aid, solicits comments from interested parties, and makes recommendations which are included with the applications.

Financial Capability: The Commission's budget is apportioned among the members on the basis of population with minimum dues of \$100 and a maximum of \$1,250. The Commission also generates funds by charging fees for its planning services to municipalities and receives some Federal matching funds from HUD. In fiscal year 1970, of the RPC's budget of \$484,000, \$125,000 was federally funded and \$359,000 came from local sources. The budget must be approved by the members.

Manpower Situation: Members of the Commission include 3 Cuyahoga County Commissioners, representatives of municipalities, and, as ex-officio members, the county administrator and engineer. The Executive Committee approves the areas to be studied, the work program, and hires the Director. The Director in turn hires the staff. The Commission is authorized to have a staff of 50, but due to a lack of funds, the staff numbers only 26, half of whom are professionals. The RPC does hire consultant firms in the preparation of studies.

Other Important Information: According to a commission representative the Commission favors a county or regional authority for sewage and wastewater management. In order for the county to assume such a responsibility, state law would have to be changed to broaden the authority's base of representation, as the municipalities would not accept an agency headed by only the three County Commissioners. The RPC's functions have expanded gradually. For some time, it has followed a three to five year work program which is updated annually.

A broadly based plan such as the NEOWDP is essential for guiding development activities of a regional nature. It is implemented primarily by local actions, at or below the County level. The RPC plays a major implementing role in Cuyahoga County.

CLEVELAND CITY PLANNING COMMISSION

Wastewater Treatment Functions: The Commission is authorized to make and adopt a general plan for the development and improvement of the city including a plan for water and wastewater management. All ordinances and resolutions of the City Council which deal with the city plan, public improvements, or zoning and all proposals for public improvements within the city by other public bodies must be referred to the Commission for its approval. The City Council can overrule Commission disapproval by a 2/3 majority vote.

Other Functions: The Commission is authorized to recommend for the general location, character and extent of streets, bridges, waterways, subways, parks, open spaces, public buildings, and public utilities. The Commission has authority to publish and distribute copies of plans in order to promote public interest in public plans and proposals.

Geographical Jurisdiction: The Commission is authorized to plan for the area within the city and for any area outside the city which, in the judgement of the Commission bears relation to the planning of the city. The jurisdiction was established by an amendment to the charter of the city of Cleveland establishing a city planning commission dated November 3, 1942.

Date of Organization's Creation: The Commission was created in 1915 pursuant to a section in the city's charter adopted July 1, 1913, which called for a planning Commission with powers "as provided by ordinance".

Changes in Organization: In 1942, the city charter was amended to give the Commission the responsibility of making a general plan for development of the city. All acts of the City Council affecting the plan and any proposal for improvement within the city by any other body must be approved by the Commission. The charter amendment also authorized the Commission to publish and distribute at public expense copies of plans and reports, and to promote public interest in general plans and other recommendations and proposals.

Legal and Administrative Constraints: The City Council may override a Commission disapproval by a 2/3 majority vote.

Relationship With Other Organizations: In applying for Federal funds, the Commission's plans are reviewed by the Cuyahoga County Regional Planning Commission, which acts as an A-95 regional (county-wide) clearinghouse on behalf of the Northeast Ohio Areawide Coordinating Agency. The Commission's Chairman is a member of the County Regional Planning Commission. The Commission has also developed a working relationship with other city departments because of its authority to review all plans for capital improvements an in particular with the Utilities Department which implements the Commission's plans.

Present and Future Plans and Programs: The Commission's work plan includes a capital improvement plan for water and wastewater.

Financial Capability: The Commission's expenses are paid by the city. The Commission's budgets for the past four years have been as follows: 1968, \$301,101; 1969, \$376,842; 1970, \$396,566; and 1971, \$290,669.

Manpower Situation: The Commission is made up of seven members. Six are appointed by the Mayor for overlapping six year terms, and one is a member of the City Council chosen by each newly-elected Council for its two year term. The Planning Director is nominated by the Commission and appointed by the Mayor. The staff is nominated by the Director and appointed by the Commission. At the present time, the staff consists of eight clerks and nine professionals, none of whom has a background in wastewater treatment. Budgetary restrictions prevent the Commission from making needed additions to its staff. According to the person interviewed, no additional staff is needed in the area of wastewater treatment.

NORTHEAST OHIO AREAWISE COORDINATING AGENCY

Waste Treatment Functions: NOACA is a multi-purpose agency designed to comply with a number of federal directives. As an areawide planning agency, it has the capacity to plan for regional sewer and sewage treatment facilities. As an A-95 regional review agency, NOACA reviews proposed plans for sewage treatment facilities submitted by applicants seeking Federal funds to finance the project.

Other Functions NOACA is simultaneously a "metropolitan regional council" with duties defined by HUD, a regional clearinghouse with duties defined by OMB circular A-95, and involved in a transportation study for the Federal Highway Administration (FHWA). These duties require NOACA to become involved in a wide range of areas including land use, transportation, housing and economic studies.

Geographic Jurisdiction: NOACA's jurisdiction covers Lorain, Cuyahoga, Lake, Geauga, Medina, Summit and Portage Counties. This geographical area was determined by HUD. Membership in NOACA is open to all counties, towns and villages and at the present time, membership includes 7 counties, 62 townships, 41 cities and 33 villages.

Date of Organization's Creation NOACA was created in 1969 under the provisions of Sections 302.21 - 302.24 of the Ohio Revised Code. The agency was organized in response to OMB Circular A-95, which implements Title IV of the Inter-governmental Cooperation Act of 1968, and Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966.

Change in Responsibilities: One of NOACA's legislated functions is to act as the areawide planning organization (APO) for the seven county area. NOACA was "de-certified" in September, 1971 for failure to comply with HUD regulations. However, NOACA has recently been re-certified as an APO. Originally, NOACA was a law enforcement planning council under LEAA. However, NOACA no longer performs this function. On July 1, 1969 NOACA absorbed the Cleveland - Seven-County Study (SCOTS) and assumed SCOTS functions related to land use and transportation. Another change occurred when OMB expanded the number of programs to be received by NOACA as an A-95 agency from 17 to 54.

Legal and Administrative Constraints: NOACA has recommendatory authority only. It cannot require a member to accept its plans or force a member to conform its local plan to NOACA regional plan.

Relationships With Other Organizations: As an A-95 clearinghouse, NOACA must review the project of any county, municipality, or township in the Seven County area which is seeking Federal funds. NOACA has delegated its review function for local or regional plans to the county or regional planning commission to which the plan applies. NOACA itself reviews only plans which extend beyond county lines. In reviewing plans, NOACA distributes copies of project plans to interested parties and solicits their comments. NOACA also reviews plans for the Ohio Statewide Clearinghouse and sends plans to the Statewide Clearinghouse for review at the state level.

On the Federal level, NOACA receives funds from HUD and The Federal Highway Administration.

NOACA works closely, but on an informal basis, with state, county, and local bodies on matters relating to wastewater management. Among those agencies are the Ohio Department of Natural Resources, the Department of Development, the Department of Urban Affairs, Regional Planning Commissions, County Planning Commissions, County Sanitary Engineers, City Planning Commissions and City Service Departments. NOACA also provides for citizen participation in its activities.

Present and Future Plans and Programs: As an A-95 clearinghouse, NOACA receives copies of planned projects from applicants, solicits comments from interested parties and makes a recommendation which is included in the application for Federal funding.

Financial Capability: NOACA's funds are derived from two sources: annual dues paid by members and planning grants from HUD. NOACA has no power to require a member to pay its assigned dues. In 1970, of NOACA's total budget of \$959,092, \$662,184 was Federally funded and \$336,908 came from members. Approximately 1/3 of the funds NOACA receives from HUD are allocated to wastewater management related activities. NOACA receives no state funds and lack of funds is the agency's largest problem.

Manpower Situation: NOACA's activities are directed by a 52 member Board, which is made up of township trustees, mayors, county commissioners and other public officials. The Board utilizes the committee system to divide its workload. An executive director heads the agency's staff, which is composed of 16 professionals, 14 semi-professionals, and 7 non-professionals. NOACA would like to hire additional professional planners, but lacks adequate funds. Occasionally outside consultants are hired.

OHIO PLANNING AND DEVELOPMENT CLEARINGHOUSE (A-95)

Wastewater Treatment Functions: The Ohio Planning and Development Clearinghouse is located within the Governor's office and serves as the State's official planning and review agency in compliance with the U.S. Bureau of the Budget Circular A-95 calling for "clearinghouse" agencies at the state level. The Department was established in 1969 by Executive order. As part of this review function, the agency evaluates, reviews and coordinates Federally funded State, regional and local wastewater treatment facility planning and development.

The Department has no funding authority or capital budget of its own. It is manned by a staff of four. Its budget is supported completely by Federal funds.

The Agency's administrative guidelines are established by the Federal Office of Management and Budget. The office is not yet completely organized and is limited somewhat by the small staff and short review period. The office has only 30 days to review and comment on applications from municipalities and 45 days for State agencies. Additional budget and staff would permit the office to become more heavily involved in procuring Federal funds rather than simply reviewing existing applications for Federal funding. In addition to this State A-95 office there are 13 metropolitan A-95 clearinghouses in Ohio, three of which are in the Study Area.

OHIO DEPARTMENT OF NATURAL RESOURCES

Wastewater Treatment Facilities: Since creation of Ohio EPA in 1972, the wastewater management functions of DNR have become the responsibility of Ohio EPA. Specifically, DNR's responsibility for developing a comprehensive plan for the development, use and protection of water resources has been transferred. DNR, however, retains responsibility for preparing the flood control, flood plain management, recreation, fish and wildlife elements of each plan. DNR's responsibility for gathering information on water supplies, stream gauging, delineating watersheds and providing technical assistance on such matters has also been transferred to Ohio EPA.

Geographical Jurisdiction: The Department's authority extends throughout the State.

Date of Organization's Creation: The Department was established in 1949 by chapters 1501-1548 of the Ohio Revised Code. In brief these chapters directed the reformulation and execution of a long-term comprehensive development plan for the wise use of the State's natural resources.

Summary of Legal and Administrative Constraints: Article 13 Section 3 of the Ohio Constitution declares that any regional plan or proposal may be defeated by any key community that feels its home rule rights would be compromised or weakened.

Relationships With Other Organizations: DNR coordinates its activities with the Ohio EPA and the Ohio Water Development Authority at the State level. In addition the Director serves on the Great Lakes Basin Commission and the Ohio River Basin Commission. In carrying out its planning responsibilities the Department provides assistance to local and municipal agencies on water resource related problems. There has been no manpower sharing among these aforementioned organizations. The Director of Natural Resources also represents the State in matters which involve the Corps of Engineers and the Soil Conservation Service. In addition, the Department reviews federal proposals concerning natural resources and reports to the Governor.

Summary of Present Programs: The State has been divided into five regional water development plan areas. This planning effort is supported by state issued bonds for "necessary planning for water pollution control and abatement and water management, including collection, supply, storage or impoundment as well as real estate acquisition and capital improvement." The Cleveland area is included within the Northeast plan (one of five regional water development areas). These plans, however, are being opposed by many local interests who view regional planning as a threat to home rule.

Current Financial Capability: In 1970 biennial the Department had a budget of \$36 million (approximately \$16 million for parks, \$11 million for water related activities, 5 million for wildlife and \$3 million for forestry). In 1971 there were substantial increases in funding for parks (16 million to 38 million) and watercraft (\$654,000 to \$2.5 million) but not in water resources management planning and monitoring. The \$11 million includes supports for water planning and environmental planning as well as the Division of Water. The Division's budget alone is up slightly from \$560,000 in FY72 to \$1.08 million in FY73. The Division's activities consist primarily of protective regulations of the State's streams, rivers, dams and reservoirs, etc. The Department's capital budget provides a total of \$26.5 million during the 1972-73 biennial to be used primarily for non wastewater related activities such as park facilities, construction and natural area land acquisition. The biennial budget also shows in FY72 a substantial increase in water planning up from \$677,000 to \$968,000 in FY73 and engineering studies up from \$648,600 in FY72 to \$760,000 in FY73. Authorities in the department indicate this reflects increased state efforts to provide facilities to comply with State and Federal water quality standards.

Current Manpower Capability: The Planning and Research Division of the Department presently employs about 80. Of this total 75% are professionals consisting of planners, sanitary engineers and biologists, etc. This figure will probably increase in FY73 (see section on finances).

The Ohio Department of Natural Resources also maintains several district offices, including The Northeast District Office which is presently responsible for developing and implementing the Northeast Ohio Water Development Plan. With a staff of only one the District's are limited to coordinating with local agencies and public information regarding the Department's programs. The District was created by administrative action in 1969 in order to provide better coordination between the Department and the local agencies. The District covers an area of 4210 square miles in the northeast corner of the State bounded on the east by Pennsylvania and in the west by the Black River.

Although the District Director does maintain relationships with a number of local agencies and organizations he has no policy authority and no staff. As an administrative creation the District authority is limited to a staff function of carrying out central office policy.

OHIO WATER DEVELOPMENT AUTHORITY

Waste Treatment Functions: The Ohio Water Development Authority has two major responsibilities and has recently been granted a third. The agency makes loans to government and industry for the construction of wastewater treatment facilities and reviews treatment facility grant applications for Federal funds. The agency also works closely with the Federal government when Federal matching funds for waste treatment facilities are involved. In 1971 OWDA was granted the authority to establish wastewater facilities service areas in order to build and operate wastewater treatment facilities. (Chapter 6123 ORC, effective 7-13-70) also expanded the Authority's powers to include solid waste projects. Pursuant to this legislation the authority may fund, construct and operate solid waste facilities in the same manner prescribed for other waste facilities and may negotiate contracts with industry instead of going to public bid.

Geographical Jurisdiction: The authority of the agency extends throughout the State.

Date of Organization's Creation: The OWDA was created on 3-7-68 by Chapter 6121 of the Ohio Revised Code to "preserve, protect, upgrade, conserve, develop, utilize, and manage the water resources of teh State, to prevent or abate the pollution of water resources, and to promote the beneficial use of waters of the State by providing for the acquisition, construction, maintenance, repair and operation of water development projects". In order to carry out these activities the authority was given the power to issue bonds and to raise revenues.

Differences Between Authority and Operating Responsibilities: Despite the new authority to establish service areas granted the OWDA in 1971 the agency has never exercised this power. Officials cite staffing restrictions as the reason. The legislative intent in granting authority to establish service areas was not so much that the power would actually be used but that the threat of its use would be sufficient. Several polluters have been identified as being subject to this authority, but none have actually had service areas established. The Executive Director noted that he expects to only use the new authority in about 10% of his cases.

Summary of Legal and Administrative Constraints: In providing funding for waste treatment facilities to State and local applicants, OWDA finances the total capital costs of facilities which have been approved for funding by U.S. EPA. OWDA later collects 75% of construction costs from U.S. EPA and is reimbursed by the local government for the remaining 25%. The State backed a \$100 million bond issue in 1968. This has been matched by Federal funds which in 1971 amounted to \$35 million.

Before OWDA can establish a wastewater facilities service area it must first receive a request from either the local applicant or the local agency must have failed to comply with an Ohio EPA order for at least 180 days. Before OWDA can build or operate treatment facilities it must be requested by a municipality or recommended by Ohio EPA. All program applications for Federal funding must be reviewed by the State and regional A-95 Clearinghouses.

Relationships to Other Organizations: In carrying out its planning and review activities of local applicants for State or Federal assistance OWDA coordinates with the Ohio EPA and the State and Regional A-95 Clearinghouses and the Ohio EPA. It also coordinates its activities with the Department of Natural Resources and works closely with the Federal funding agencies including EPA, HUD, Farmers Home Administration, Appalachian Regional Commission and the Economic Development Commission.

Present Wastewater Treatment Programs: OWDA has two major programs, one which pre-finances the U.S. EPA grant on sewage treatment plants and/or interceptors. This is the Local Government Agency Program.

The LGA Program was formulated to eliminate the deficit or backlog in construction of sewage treatment plants and/or interceptors in the State of Ohio. This program has moved exceedingly well since the OWDA now has \$92 million in projects under construction and \$130 million in signed agreements using funds available since November, 1969. State funds totalling \$100 million were appropriated in House Bill 828 and this money has been used to get the program underway.

The industrial program is the other major program. The incentive to industry is a source of financing for waste treatment facilities at a tax-free revenue bond rate, as these facilities are financed by the issuances of OWDA revenue bonds. The entire cost of the project must be repaid as grant funds cannot be used to benefit industry.

Finance Capability: OWDA's financial support comes from three sources: \$100 million from a state bond issue in 1968 which is used as seed money, Federal reimbursements amounting to \$34 million in 1971 and OWDA's own revenue bonds secured by loans to local communities for construction of wastewater facilities. This last source now amounts to \$105 million. The \$100 million originally provided came from a \$780 million bond issue which also contained monies for parks, recreation and education. The \$100 million will be expended by 1973.

Because the federal share of planning and construction costs has increased to 75% under the FWPCAA and because in the future OWDA will finance only projects which have been approved for funding by U.S. EPA, OWDA will use short term notes rather than bonds to raise necessary funds. OWDA plans to ask for bids for \$50 million in notes by September, 1973.

OWDA is currently prefinancing EPA grants. In effect, the Agency puts up the entire cost of a project and then is reimbursed by the federal government for 75% of costs and by local governments for 25% of costs. The majority of the authority's funds have been used to finance municipal facilities but because the bonds are tax-free and result in cheaper money there is a strong incentive for industry to participate. The authority hopes to increase industry's participation.

Operating costs for the authority are obtained by adding a percentage to the loan interest. Financially the Authority is self sufficient. As of November 1, 1971 the Authority has signed agreements for the construction of 265 local government projects with a total cost of \$645 million. Of this total, the State's obligated share now totals \$227 million of which \$193 million has been released. An additional 14 projects have been completed with a State share of \$3.7 million. The authority is also presently funding another 12 industrial projects at a State cost of \$8.6 million (total cost \$38.4 million).

Manpower Capability: OWDA is directed by a board made up of 7 members - 5 appointed by the Governor plus the Directors of Ohio EPA and the Department of Natural Resources. The Authority's staff presently totals four professionals - an Executive Director, Chief Engineer, Assistant Engineer and Accountant.

Other Information: OWDA Officials feel regional authorities with enforcement powers are necessary along with additional Federal funding. It was also suggested that one Federal agency distribute all Federal wastewater treatment monies.

SUMMIT COUNTY SANITARY ENGINEERING DEPARTMENT

Wastewater Treatment Functions: The Department operates and maintains thirty treatment plants and 600 miles of sewer lines throughout the county. Many of the plants are small capacity package plants usually designed for subdivisions which have been taken over by the county.

Other Functions: The county also supplies water to Stow, Talmage, Springfield and Bath.

Geographical Jurisdiction: The Department's jurisdiction includes Summit County, excluding the area within municipal corporations unless the municipal corporation authorizes the county to act within its boundaries. The geographical area was established by Section 6117.01 et. seq. of the Ohio Revised Code.

Date of Organization's Creation: The Department was created in 1967 under authority of Section 6117.01 of the population in excess of 100,000 to create a Sanitary Engineering Department. The Department was organized in response to a state decision that the County Engineers could not also receive a separate salary as County Sanitary Engineers.

Legal and Administrative Constraints: Under Section 3701.18 of the Ohio Revised Code, any county plans for the alteration of wastewater treatment facilities must be approved by the Ohio EPA. The county is also required by Section 611.04 of the code to obtain a permit from the Ohio EPA. Section 6117.02 of the code states that monies collected as sewer use charges must be expended for the maintenance or expansion of wastewater treatment facilities.

Relationships With Other Organizations: At the Federal level, the Department has relationships with EPA and HUD, which provide Federal funds for construction. The Twinsburg Heights wastewater collection project, which will cost over \$1 million, will be 90% funded by a HUD grant. There is also an informal working relationship with the Corps of Engineers. As part of the A-95 review process, all applications for Federal aid are reviewed by NOACA and the State Clearinghouse (OPDCH). At the state level, the Department has contacts with

OWDA, which provides construction loans (70% repayable) with the Ohio EPA which must approve all construction permits, and which also issues waste discharge permits. Locally, the Department's plans are coordinated with the Tri-County Regional Planning Commission. The County has also established a relationship with the Twinsburg Water and Sewage Authority because of the possibility that the county may take over Twinsburg's treatment plant.

Present Programs: The county operates and maintains thirty treatment plants and 600 miles of sewer lines and in addition supplies several counties with water. The county is also involved in the planning and construction of a number of treatment plants, and sewer lines.

Future Plans and Programs: A county-wide water supply system may be established in the future.

Financial Capability: Operation expenses are paid by user charges and tap-in fees. Revenues for 1971 and 1972 have been estimated at \$1,230,000 and \$1,460,000 respectively. Total annual operation and maintenance costs are approximately \$1 million. Construction costs are financed by HUD grants, OWDA loans, bonds and notes, and by frontage assessments. The total cost of wastewater treatment facilities now under construction is \$2.1 million and the 1971 bonded indebtedness was \$.5 million.

Manpower Situation: Section 6117.01 of the Ohio Revised Code authorizes the County Commissioners in those counties having a population in excess of 100,000 to hire a Sanitary Engineer, who in turn may appoint necessary assistants and clerks. The Sanitary Engineer does some planning, but outside consultants are also hired. At the present time, the county employs six full-time and one part-time professionals. There is a shortage of qualified plant operators in the area and the county will need four additional operators if the Fish Creek Plant is built. The county employs a part-time engineer who fills in as a plant operator. A class, at which attendance is voluntary, is run for sewage and maintenance operators.

Changes in Institutional Factors: Authorities interviewed believe that the state or Federal governments will have to act in the future in order to solve wastewater problems.

Other Important Information: The County Sanitary Engineer would like the process followed in obtaining financial assistance to be simplified.

OHIO ENVIRONMENTAL PROTECTION AGENCY

Wastewater Management Functions: Ohio EPA is the state agency responsible for water pollution control. As a regulatory agency, Ohio EPA sets and enforces water quality standards and effluent limitations, issues permits to anyone discharging wastes into waters of the State, operates a monitoring and surveillance system and approves of all pollution control construction plans. As a planning agency, Ohio EPA is responsible for the continuing planning process required by Section 303 (e) of the FWPCAA for developing a comprehensive plan for the development, use and protection of water resources, covering all aspects of wastewater management.

Other Functions: Ohio EPA is also responsible for administration of the state's air pollution, solid waste disposal and public water supply programs.

Geographical Jurisdiction: Statewide.

Date of Organization's Creation: Ohio EPA was formed in 1972, as the result of a reorganization and consolidation of state agencies with responsibilities in the natural resource and environmental area. The act creating Ohio EPA abolished the Air and Water Pollution Control Boards and transferred their authority to Ohio EPA; transferred the Ohio Department of Health's powers governing solid waste, public water supply and sewage industrial waste discharges to Ohio EPA; and transferred some of the Department of Natural Resources' authority pertaining to river basin planning and water quality monitoring to Ohio EPA.

Legal and Administrative Constraints: Water quality standards, effluent limitations and Section 303(e) plans must be approved by U.S. EPA. Ohio EPA's discharge permit program is also subject to federal regulations and U.S. EPA may take action if Ohio EPA does not act against illegal discharges. Section 106 of the FWPCAA requires submission of state water pollution control programs before federal assistance for such programs can be approved.

Relationships With Other Organizations: At the federal level, Ohio EPA has contact with U.S. EPA which must approve of Ohio Water quality standards, effluent limitations, water quality planning and discharge permits. U.S. EPA also funds treatment facilities in accordance with the priority list developed by Ohio EPA. At the state level, Ohio EPA has contact with OWDA, which finances treatment facilities; with the Ohio Department of Economic and Community Development, which provides demographic and economic planning data; with DNR, which is responsible for the recreational, flood control and fish and wildlife aspects of water resource planning; and with the Office of the Attorney General, which handles legal matters. At the local level, Ohio EPA is in contact with municipalities and dis-

chargers which must secure discharger permits from the state. Furthermore, local wastewater facility plans and grant applications to the federal government must be approved by Ohio EPA. Contact is also maintained at the local level through state involvement in the planning required by Sections 208 and 303(e) of the FWPCAA.

Present Programs: Ohio EPA's water pollution control efforts center around the requirements of the continuing planning process developed pursuant to Section 303(e) of the FWPCAA. Section 303(e) requires the division of the state into basins and the preparation of plans for each basin. The plans are to include applicable water quality standards, the determination and allocation of maximum daily loads, the identification of point and non-point sources of pollution, schedules of compliance and an assessment of municipal needs. The Section 303(e) plans will provide the information necessary for the success of the state's discharge permit, enforcement and construction programs.

Financial Capability: The Ohio legislation has appropriated \$21.3 million for Ohio EPA for FY 73 and 74 (this is a biennial appropriation). Approximately \$6.5 to \$7 million of this amount will be used for water pollution control programs. In addition, Ohio EPA expects \$2 million in federal assistance for FY 74 (up from \$1.3 million in FY 73). Approximately \$1.5 million of the federal assistance will be used for water pollution control.

Manpower Situation: As of August, 1973, Ohio EPA had a staff of 558. Of these, 40 are students hired for the summer only. Approximately 225 members of the staff are involved in Ohio EPA's water pollution control programs. According to the agency's Division of Finance and Administration additional personnel for the water pollution programs are needed but hiring additional staff is contingent upon additional federal assistance.

At the present time, Ohio EPA has four district offices in addition to the central headquarters in Columbus. The number of districts will be increased to five in the near future in order to conform to the uniform districting system which will be utilized by all state agencies. The district offices are responsible for field work, the permit program and Section 303(e) planning.

THREE RIVERS WATERSHED DISTRICT

Wastewater Treatment Functions: The Three River's Watershed District is responsible for preparing a comprehensive plan for the development and control of water resources within the District. As part of its planning activities, the District is involved in establishing water quality standards and conducting water pollution and waste treatment studies. The District has no authority to implement its plans, however, appropriate parts can be carried out by municipalities and counties. Conservancy Districts, with authority to construct, operate and maintain water management facilities, can be created where appropriate. The U.S. Army Corps of Engineers can provide flood control where projects are economically sound.

Other Functions: As part of its water resources development responsibilities, the District is authorized to review and recommend development plans, recommend means

to resolve conflicts among water users, prepare a comprehensive water resource development plan, advise public and private interests, and to designate specific reaches in the channel of any watercourse within the District as a restricted channel and any appurtenant area as a restricted floodway. No person or agency, except a conservancy district, may alter any structure in a restricted channel or floodway or deposit into a restricted channel or floodway without the consent of the District. Furthermore, the District is authorized to enjoin any violation of its authority.

Geographic Jurisdiction: The District's jurisdiction includes the drainage basins of the Cuyahoga, Chagrin, and Rocky Rivers and several smaller tributaries of Lake Erie. In this 1500 square mile area are parts of Cuyahoga, Geauga, Lake Lorain, Median, Portage, Stark, and Summit Counties.

Date of Organization's Creation: The District was established in December, 1965 by the County Commissioners of the area over which the District has jurisdiction. The Commissioners acted pursuant to the Wastershed District Act (Chapter 6105 of the Ohio Revised Code), which was enacted in June, 1963. The Lake Erie Watershed Conservation Foundation was instrumental in creation of the District.

Change in Responsibilities: The only change has been with regard to the District's authority to designate specific reaches of any watercourse within the District as a restricted channel.

Legal and Administrative Constraints: The District has maintained a policy of allowing municipalities with planning ability to plan their own wastewater treatment systems.

Relationships With Other Organizations: In the area of flood control, the District works with the U.S. Army Corps of Engineers and with the U.S. Geological Survey. The District works with the Ohio EPA with regard to water quality management and coordinates its watershed planning activity with the Ohio Department of Natural Resources. The comprehensive plan prepared by the District is to be submitted to the Ohio EPA.

Present Programs and Future Plans and Programs: The District's first objective, to have soundly conceived goals for water quality established throughout the District, was accomplished in 1969. Present and future objectives of the District include the development of plans and programs through which the District can help to insure an adequate water supply, water based recreation and flood protection.

Financial Capability: The District's budget is apportioned among the eight counties in the ratio that the taxable value of the real and personal property within such county and within the District bears to the taxable value of all real and personal property within the District. In 1970, the District had an income of \$67,184.97 and expenses totaling \$76,210.49. The budget for 1971 was \$85,000.

Manpower Situation: The District is run by a five man Board appointed by the County Commissioner. The Board members must represent agriculture, industry, public recreation, public water supply and the general public.

The District is authorized to employ a chief engineer and other engineers, consultants, attorneys, employees, and assistants. At the present time, the District employs two full-time professionals and hires outside consultants for studies.

Other Important Information: Although the District's effectiveness is restricted by its financial situation, the District's support among local and state agencies and its consultative efforts have increased its ability to coordinate water resource development. Authorities interviewed believe that any regional water resource agency must be basin oriented. It also feels that more attention should be given to developing methods of handling storm water overflow and sludge disposal problems and that the Corps of Engineers should take a more active interest in such problems.

TRI-COUNTY REGIONAL PLANNING COMMISSION

Wastewater Treatment Functions: The Commission has broad authority in planning wastewater collection and treatment systems. It is authorized to plan for land use, water systems, the financing of capital projects, the location of public and private works, to recommend regulatory measures to implement the regional plans and to provide planning assistance to local units of government. The Commission's staff allocates approximately 15% of its time to wastewater treatment planning.

Other Functions: The Commission is also authorized to plan and report on regional goals, economic and social conditions, and general locations for conservation and the development of natural resources, and transportation and communications systems.

Geographical Jurisdiction: The planning area covers Medina, Summit, and Portage Counties. The area includes twelve cities, eighteen villages and sixty townships and has a population of approximately 750,000.

Date of Organization's Creation: The Commission was created in 1956 under the provisions of Section 713.21 - 713.27 of the Ohio Code.

Change in Responsibilities: In 1967, the Northeast Ohio Areawide Coordinating Agency (NOACA) was designated as the coordinating agency for a seven county region which includes the area covered by the Commission. As a result, the Commission became a sub-regional rather than a regional planning agency.

Legal and Administrative Constraints: The Commission has no formal enforcement power except as delegated by member communities. It cannot compel a member municipality to accept its recommendation for a regional plan or require that a member community conform a project to the regional plan.

Relationships With Other Organizations: The Commission has formal and informal relationships with Federal, state, and local organizations. Plans formulated by the Commission are forwarded to NOACA and then to federal agencies such as EPA and HUD for review. In turn, the Commission reviews environmental impact statements filed by Federal agencies. The Commission also works with the Soil Conservation Service on soil conservation projects as a part of the Urban development in the region and with the Department of Transportation. At the state level, the Commission is the State A-95 Clearinghouse Agency. The Commission is also a member of the Northeast Ohio Plan Review Committee and cooperates with the Ohio Development Department. The Commission works informally towards state adoption of its plans. Locally, the Commission cooperates with those seeking to utilize its planning ability and tries to make the public aware of environmental problems. Communication with the public takes place through publication of a newsletter, by offering citizen groups an opportunity to be heard and be speaking to various community groups. The Commission also has an informal working relationship with the Area Progress Board, a business organization attempting to attract new industry to the area.

Present and Future Plans and Programs: The Commission has no construction or implementation authority, but is presently planning for sewage treatment facilities which will be necessary to handle the projected population growth. The Commission is planning for facilities which will have the capacity to handle the sewage of twice the present population.

Financial Capability: The Commission's budget is apportioned among the participating units of local government. However, the Commission has no authority to raise revenue itself and cannot compel local government to pay their share. It is anticipated that the Commissions current annual budget of \$200,000 will increase in the future. Since 1967, when NOACA became the regional planning agency, the Commission has had only very limited Federal funds.

Manpower Situation: The Commission is authorized to employ such engineers, accountants, consultants and employees as are necessary. Since 1967, when the Commission lost most of its Federal Funding, the Commission's staff has been reduced by approximately 50%. At the present time, one professional with a background in wastewater treatment is employed. The Commission does all of its own planning but does use some University of Akron staff as technical consultants in various fields.

Changes in Institutional Factors: It is anticipated that the Commission's staff will grow in size as the Commission's budget is increased.

Other Important Information: Authorities interviewed believe that the Commission is moving towards a more active and positive role in planning for wastewater treatment. He also feels that there is a need for zoning on a regional basis but that local governments are reluctant to relinquish their control over zoning.

VILLAGE OF CHAGRIN FALLS

Wastewater Treatment Functions. The Village of Chagrin Falls owns, operates and maintains a wastewater treatment plant and appurtenant sewer lines.

Other Functions. Chagrin Falls also operates a water supply system.

Geographical Jurisdiction. The wastewater treatment system services the village of Chagrin Falls and portions of Brainbridge Township and South Russell. The area served by the water supply system is Chagrin Falls and portions of neighboring communities and is larger than the area served with sewage treatment. There is no legal limit to the jurisdiction, which was established by administrative decision.

Date of Organization's Creation. The sewage treatment plant began operations in 1955 and was constructed pursuant to Article XVIII, Sec. 3 of the Ohio Constitution, which gives municipalities the authority to operate sewage treatment plants.

Legal and Administrative Constraints. Under Section 3701.18 of the Ohio Revised Code, any alterations to Chagrin Falls' treatment facilities must be approved by the Ohio EPA. The City is also required by Section 6111.04 of the Code to obtain a permit from the Ohio EPA to discharge wastes into waters of the state.

Relationships with Other Organizations. At the federal level, Chagrin Falls has contact with EPA and HUD as the source of federal financial assistance. All federal funds are channeled through OWDA to Chagrin Falls. The village also has a relationship with OWDA due to the fact that it hopes to receive assistance from OWDA to finance the cost of a new treatment plant. At the state level, Chagrin Falls also works with the Ohio EPA which must approve any plans for expanding waste treatment facilities and issues and renews permits for the discharge of wastewater into public streams and with OWDA from whom it has received a grant. The superintendent of the treatment plant is required to submit monthly and annual reports to the State EPA. At the regional level, the village works with NOACA, which reviews any application for Federal funds. Locally, Chagrin Falls provides sewage treatment service to portions of Brainbridge Township and to South Russell on a contractual basis. The village also has informal relationships with the Cuyahoga County Engineer and the Ohio Department of Natural Resources.

Present Programs. The Chagrin Falls treatment plant provides primary and secondary treatment for wastewater including industrial waste. The treated effluent flows into the Chagrin River. The village does not anticipate any population or industrial growth which would greatly increase the load on the plant.

Future Plans and Programs. The village plans to build an addition to the treatment plant which will cost approximately \$2.8 million. Construction was planned to have begun in January, 1972 and should last 18 months. The village expects to begin tertiary treatment in 3 years and also expects to extend service to part of western Geauga County in the near future. Also being discussed is a plan whereby Chagrin Falls may treat a portion of Moreland Hill's wastewater. An extension of service to Geauga County has been approved by both the Chagrin Falls Village Council and the Geauga County Commissioners.

Financial Capability. The existing plant, which cost \$1.9 million to build, was financed by 20 year bonds issued in 1955 and 1956. Funds needed to pay off the bonds are derived from a general bond retirement fund. A portion of the income from property taxes is paid into the fund. Revenue for operation and maintenance of the plant is derived from sewer user charges. The present rate is 75% of the user's water bill plus a \$1.50 per month service charge. The construction of the new facility will be financed by a loan (70% repayable) from OWDA. The sewer rates will be raised to pay for increased operation and maintenance costs and to pay off the bonds. The new rate is expected to be 120% of the user's water rate with no service charge. Under the contract between Chagrin Falls and Geauga County, the county will pay 22% of the additional facilities. The village will meter the flow and bill the county, which will in turn bill the users in the county.

Manpower Situation. The plant has a staff of two men, a Class III operator and a trainee. The Service Director would like to hire additional men, but they are hard to find because of the demand for qualified operators.

Changes in Institutional Factors. The village has begun construction of a new treatment facility and plans to extend treatment service and begin tertiary treatment.

Other Important Information. Authorities interviewed believe that it is neither economical nor efficient for every small community to operate its own treatment facilities and that a regional or metropolitan approach would be more logical. Because Chagrin Falls is located in a valley, it is conceivable that the village will someday treat wastewater from surrounding communities located on higher ground.

CITY OF LAKEWOOD

Wastewater Treatment Functions: The city of Lakewood owns, operates and maintains a sewage treatment plant and appentenant sewer lines.

Other Functions: The City receives drinking water from Cleveland on a master-meter basis.

Geographical Jurisdiction: The Lakewood treatment plant provides service to the residents of Lakewood and a portion of the city of Cleveland. The present jurisdiction was established by administrative decision. Part of the city is served by the Cleveland Regional Sewer District.

Date of Organization's Creation: The treatment plant began operation in 1966 under authority of the city charter and Article XVIII, Section 3 of the Ohio Constitution.

Change in Responsibilities: In 1965, Lakewood and Cleveland signed a 25 year contract whereby Lakewood agreed to treat a portion of Cleveland's wastewater in return for a service charge.

Legal and Administrative Constraints: According to the contract between Lakewood and Cleveland, any capital improvement to be made on Lakewood's plant must be approved by both Lakewood and Cleveland. Under Section 3701.18 of the Ohio Revised Code, all plans for altering sewage treatment works must be approved by the Ohio EPA. The city is also required (by Section 6111.04 of the Code) to obtain a permit from the Ohio EPA to discharge wastes into waters of the state.

Relationships With Other Organizations: At the state level, the city's treatment facilities must be inspected by, and discharge permits must be obtained from the Ohio EPA. Lakewood can obtain loans (70% repayable) from OWDA to pay for improved or expanded facilities and all funds from EPA or HUD are channeled through OWDA. Plans for improved facilities must be reviewed by NOACA and the statewide clearinghouse OPDCH to insure that there is no conflict with regional or state plans. The city also works informally with the Ohio Department of Natural Resources and the Cuyahoga County Sanitary Engineering Department.

Present Programs: Lakewood operates a wastewater treatment plant which provides service to its residents and a portion of Cleveland.

Future Plans and Programs: The city plans to add phosphate removal capabilities to its plant. Future apartment buildings in Lakewood may increase the sewage flow, but no great increase is expected.

Financial Capability: The Lakewood treatment plant was originally financed by bonds worth \$2,940,000 issued on 12/1/68. The bonds are paid off by funds collected through a construction levy approved by the voters of Lakewood. The level is currently 1.17 mills/\$1,000 of assessed property valuation. Under the agreement between Cleveland and Lakewood, Cleveland has agreed to pay 25% of capital improvement costs and 15% of operating expenses. Lakewood's share of operation and maintenance costs is financed through a voter approved operating levy which has a ceiling of two mills. The operating levy for 1972 is 1.55 mills/\$1,000 of assessed property valuation. Expenses involved in maintenance and repair of sewer lines are paid from the general fund.

Manpower Situation: The Lakewood treatment plant has a staff of 27 people, which is adequate to operate the facility properly. The city has a training program and offers incentives to encourage training. The City Service Department has a crew assigned to maintain and repair sewer lines and an engineering firm is hired to plan and design any improvement of treatment facilities.

Changes in Institutional Factors: The operating costs of the treatment plant will increase when phosphate removal capabilities are added and an increase in operating revenue will be necessary. If sufficient operating funds cannot be generated due to the existing limit on millage, the city council can increase the levy or an alternate method of raising funds will have to be found.

Other Important Information: Authorities interviewed believe that there should be fewer studies and more action. It also believes that waste treatment plants should be operated locally and not by the Corps of Engineers.

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PART III
FEDERAL GOVERNMENT INSTITUTIONS
WITH WASTEWATER RELATED RESPONSIBILITIES

FEDERAL GOVERNMENT INSTITUTIONS
WITH WASTEWATER RELATED, RESPONSIBILITIES

In addition to an extensive array of relationships among state and local agencies in wastewater management there are at least three major Federal agencies with mandated responsibilities as well as several others with some lesser involvement.

Increasingly the Environmental Protection Agency is being looked to for leadership in wastewater management, planning and financing. With the passage of the Federal Water Pollution Control Act Amendment of 1972 legislation this trend will continue. Through EPA, loans and grants are available for planning and construction (waste treatment or conveyance facilities and demonstration projects). Section 8 of the Federal Water Pollution Control Act authorizes grants to local and state government bodies to plan and construct sewage treatment works; however, land and site acquisition costs of constructing sewage or overflow collection storage tanks do not qualify for aid nor do projects for low-flow augmentation or instream aeration.

Projects funded under this authority are required to be compatible with, or included in, a comprehensive basin plan. In FY 1970, construction grants for wastewater treatment works amounted to \$425,600,000. In FY 1971 the grants totaled \$1.2 billion for FY 72. The major constraint on EPA grants for wastewater treatment facilities is that collector sewers and water supply systems are not eligible for grant assistance. Grants are generally not made to projects treating 100% industrial wastes.

The matching requirements for the program range from a 30% Federal grant where no State matching program is available to a 55% Federal grant when a state has a 25% matching program. These matching formulas are expected to change as a result of legislation currently pending before Congress.

EPA also makes grants for solid waste planning for up to 2/3's of the cost for planning programs (in the case of a single municipality) and up to 75% in other cases. In FY 70, this program amounted to \$1.49 million, in FY 71, it was \$1.3 million and in FY 72, it is estimated to be \$1.3 million.

A third program area which is receiving increasing attention is water quality management planning grants for comprehensive river basin planning. These funds must be expanded only for direct planning purposes. In FY 70 the total amounted to \$823,000, in FY 71 \$1.7 million and in FY 72 \$2.35 million (est.)

EPA also provides grant assistance in two other water program areas, water pollution control for state and interstate programs and state and local manpower development. The first of these two programs supports a broad range of pollution control surveillance and enforcement programs administered by the state and provides advice and assistance on water pollution control facilities. In FY 70, a total of \$10 million was provided, in FY 71, the figure was \$10 million and in FY 72, the amount is estimated to be \$15 million. The other grant program for state and local manpower development assists State agencies to plan, develop, establish, improve or maintain adequate manpower and training programs to control water pollution.

In addition to these wastewater related program activities, EPA is also heavily involved in air pollution control, solid waste disposal, pesticides and noise abatement. EPA also approves state water quality standards, establishes water quality standards for interstate waters, regulates pollution from Federal installations, provides technical assistance and public information, takes interstate enforcement actions, maintains a national surveillance program and conducts research on water related problems.

Department of Housing and Urban Development

The Department of Housing and Urban Development is also heavily involved in wastewater management through its Basic Water and Sewer Facilities Grant Program (702) and its comprehensive planning assistance grant program (701). The 702 program provides 50% matching grants to urban state and local government and in FY 72, there was a total of \$500 million available for the program. Approximately 70% of this total has been obligated for water and sewer construction projects. The program is heavily over committed with a backlog of \$500 million in approvable projects; however, appropriations in FY 70, were only \$150 million and in FY 1971, they were also about \$150 billion; the FY 72 estimate is \$100 million. The popularity is due in part to the broad coverage: for example, applicable costs include land acquisition and site improvements. Matching formulas range as high as 90% Federal in the case of small communities under 10,000 population but are usually less. The program will not pay for building and household connections, local distribution or collection laterals, normal repair and maintenance costs, and treatment works construction. Public facilities loans are also available to applicants who meet all the requirements but cannot meet the Federal matching requirements. This program is relatively small and the FY 72 appropriation amounted to only \$40 million.

The Comprehensive Planning Assistance Grants Program (701). This program provides assistance to develop and improve methods and techniques for comprehensive planning and is the primary funding vehicle for State and regional planning activities. Grants may be up to 100% of the costs incurred and in FY 1970 \$1.95 million was spent. In FY 71 this total was \$2.5 million and in FY 72, the total is estimated at \$4. million. In 1971 HUD and EPA issued a set of guidelines designed to integrate the HUD 701 and 702 program requirements with the EPA Section 8 construction grants program all of which deal with wastewater facilities planning and construction. Under these guidelines comprehensive water quality management plans at the state and regional levels (funded through the HUD 701 program) and the EPA Wastewater Treatment Works Construction Grants Program (funded through Section 8 of the Federal Water Pollution Control Amendments), have been made more consistent with each other. These guidelines, known as the "Joint Agreement for Inter-agency Coordination in Planning and Development provide for a close cooperative working relationship between HUD and EPA in policy and coordinative planning, functional water quality planning and in the development of fully integrated wastewater collection and treatment systems. Grants awarded by HUD and EPA must hence forth meet the same administrative and regulatory requirements with respect to comprehensive and functional planning, and programming of wastewater collection and treatment systems.

HUD also administers the Urban Systems Engineering Demonstration Grants Program. Applications are made directly to Washington and usually cover 2/3's of the project cost. The FY 70 and 71, appropriations amounted to only one million dollars and the competition is extremely keen. As its name implies, the program covers design, development and management of entire water, sanitary sewage, storm, drainage or solid waste management systems. The emphasis in HUD sponsored projects is on serving the needs of urban areas in comparison with development needs with EPA or rural needs with FHA.

Corps of Engineers

The U.S. Army Corps of Engineers has been involved in the planning and construction of water resources projects since its inception in the early 1800's. This has included flood control, beach erosion and shore protection, as well as navigation. It is primarily the Corps planning activities which are of interest here since they indicate the direction and content of long range construction.

Of particular concern is the Corps program of Comprehensive River Basin studies to study water and land related resource needs and problems of entire river basins. The Corps may also undertake special studies to resolve, "unique and especially complex water resources problems," or make survey investigations to recommend ways to develop water resources in designated areas. In FY 1970, the level of funding totaled \$5.7 million for comprehensive basin studies, \$2.7 million for special studies and \$14.5 million for survey investigations (In FY 71, the funding levels totaled \$3.7 and 4 million for comprehensive basin studies and special studies). Of the total Corps budget, about 70% was for construction. Since 1970 Congress has significantly increased the funding levels for comprehensive river basin studies and this trend is expected to continue as regional approaches to wastewater management become more acceptable and feasible. The total Corps budget in FY 70 was \$1.2 billion, in FY 71, \$1.3 billion and in FY 72, \$1.6 billion.

In the past, engineering and economic consideration have been the basic criteria upon which ultimate decisions were made regarding a project's utility. Recently, however, new laws and policies emphasizing the importance of environmental quality, regional development social well-being criteria have begun to affect the more traditional planning processes, etc. Specific Corps projects must be sponsored by public agencies and, under the multi-purpose benefits concept, private interests cannot be the direct beneficiary or initiator of projects. The Corps will pay 100% of a project's costs which affects the national interest and up to 70% if the project has local or regional interest. Project approval decisions are decentralized and are usually made by the District Engineer.

Economic Development Administration

The Economic Development Administration of the Department of Commerce administers assistance programs to eligible single county redevelopment areas and multi-county development districts. Assistance programs may include, (1) grants and loans for developing facilities designed to assist communities to attract private business investment, (2) direct loans and working capital loan guarantees to encourage construction for expansion of commercial or industrial facilities in distressed communities (3) technical, planning and research assistance designed to help communities solve economic problems. EDA sponsors both loan and grant programs however the emphasis in EPA supported programs is on serving economic development ends. EDA may finance treatment works whereas HUD and FHA may not. On the other hand applications for water, sewer, or waste disposal funds must compete with other public facility needs in a project application and the project itself must be within an overall Economic Development Plan area (OEDP).

In FY 69, nationally 167 water and sewer projects received \$80.6 million in grants and loans out of a total of \$180 million appropriate for all projects. In FY 72, \$160 million was requested and available for up to 80% of a total projects cost. Three geographic units qualify for EDA assistance, redevelopment areas (RA's), economic development districts (EDD's), and economic development centers. EDA disbursal fund allocation criteria clearly emphasize regional approaches.

Farmers Home Administration

Farmers Home Administration (FHA) in the Department of Agriculture provides two major kinds of assistance (1) rural water and waste disposal grants and (2) water and waste disposal development grants. Grants for the (farmer program) must be for the preparation of comprehensive plans for water and waste disposal systems in rural areas, and may be made to public bodies. In FY 70, a total of 179 planning grants were made totaling \$3.018 million. In FY 71, these figures totaled \$4 million for 335 grants. Grants for water and waste disposal development costs are made to associations including non-profit corporations, municipalities, districts, public authorities and quasi-public agencies that propose projects for development, storage, treatment, purification and distribution of domestic water or collection, treatment or disposal of waste in rural areas (under 5,000 population). Water and waste disposal development grants may not exceed a 50% Federal contribution (although FHA may provide loans to make up any difference) and may include the costs of construction and administration. In FY 70, a total of 586 development grants were made totaling \$43 million. In FY 71, 665 grants were made totaling \$40 million. In addition FHA makes loans for watershed improvement, flood prevention and resource conservation and development. The emphasis is FHA programs is clearly rural.

Soil Conservation Service

The Soil Conservation Service in the Department of Agriculture has responsibilities for conducting river basin surveys, watershed planning, watershed improvements, flood prevention programs and resources conservation and development (with FHA). Through these various programs and Soil Conservation Service provides technical assistance, conducts surveys, and fosters Federal, state and local cooperation in conservation.

Some brief mention should also be made of the FY 73 Federal budget for water related programs and the environment. The total budget request for EPA is roughly the same as the FY 72 appropriation. In water pollution control the increase is minor and solid wastes management is actually down. The figures below indicate the trend over the past five years in water pollution funding.

Grants for municipal waste treatment plant construction (EPA) in MILLIONS

	1969	1970	1971	1972	1973
Authorization	700	1000	1,250	*	*
Budget Request	225	214	1,000	2,000	2,000
Appropriation	214	800	1,000	2,000	-
Obligation	203	425	1,228	2,081 (est)	2,000 (est)
Outlays	135	176	478	908 (est)	1,100 (est)

*awaiting Congressional action.

From these figures it may be seen that appropriations have been increasing and have been closer to the amounts authorized, for HUD and FHA the program levels will continue the same as in 1972 (under the President's budget requests). EPA's water pollution operations budget rises from \$148.4 million to \$154.6 million under the proposed FY 73 budget with notable increases in grants to state control agencies (\$15.6 to \$20.6 million), effluent guidelines (\$1.5 million to 3.4 million) and enforcement (\$9.2 to 410.3 million). Under the Administration's proposed FY 73 budget, the U.S. Army Corps of Engineers would receive \$1.8 billion for water resource planning and development. Up from \$1.6 billion in FY 72. The Soil and Conservation Service's budget for watershed and flood control operations shows a decrease from \$132.1 million in FY 72 to \$121.5 million in FY 73.

PART IV

**INSTITUTIONAL EVALUATION OF FINANCIAL AND
MANPOWER FACTORS IN THE CLEVELAND-
AKRON METROPOLITAN AND THREE
RIVERS WATERSHED AREA**

PREFACE

This section presents an evaluation of the major institutional, financial and manpower factors which must be considered in the development of alternative wastewater management programs for the Cleveland Wastewater Management Planning Area. These factors were evaluated in the context of understanding the potential impact that the implementation of various wastewater management alternatives would have on the existing institutions in the area. This evaluation will provide a basis for analyzing and determining the modifications which may be necessary to assure implementation of the alternatives, including the development of new mechanisms.

The information developed in this section is not a total coverage of all organizations, financial characteristics, and manpower factors, but instead reflects a substantial cross-section of these factors as they exist within the study area.

This section is divided into three major parts. The first part deals with institutional considerations which for analytical purposes are grouped under the following four categories:

- I. Types of existing institutions
- II. Interrelationships among existing wastewater management institutional systems.
- III. Major obstacles to institutional change.
- IV. Major opportunities for institutional change.

The second part evaluates existing financial arrangements among wastewater management institutions in the Cleveland Wastewater Management Planning Area. It sets forth present financial capabilities of state and local institutions. This part is organized into two sections:

- I. State
- II. Local Institutions

The third section analyzes the manpower factors within Cleveland Wastewater Management Planning Area. The section is subdivided as follows:

I. Critical Manpower Considerations Discussion

II. Existing Manpower Situation

The description of the existing manpower system is based upon a joint study conducted by the Department of Labor and the Environmental Protection Agency.

Definition of Terms

For purposes of this report the term "region" or "regional" is used broadly to indicate the involvement of more than one municipal corporation in wastewater management. For example, a institution is considered regional if it involves parts of two or more municipalities and a sewage treatment plant would be considered regional if it treats the sewage of two or more municipalities or the sewage of a municipality and part of the unincorporated area within a county.

The phase "institutional modification" or "institutional change" is also used broadly and includes major alternations such as the creation of new institutions as well as minor changes in the enabling legislation of existing institutions.

INSTITUTIONAL CRITICAL FACTORS

This section of the Critical Factors Report will identify those institutional considerations which will be critical in determining the need for modifying existing institutions or creating an entirely new institutional arrangement within the Cleveland-Akron and Three Rivers watershed area. Whether there will be a need to modify existing institutions or create new institutions depends upon a number of critical factors which can be grouped under the following general categories:

- I. The characteristics of organizations within the study area and at the State level which make them readily adaptable or unadaptable without major change to the Corps regional technical proposals.
- II. The strengths and weaknesses of the existing areawide wastewater management "system" formed by the activities of the myriad organizations now functioning in the study area.
- III. The major obstacles to change that will have to be dealt with in any institutional recommendation that modifies the existing system.
- IV. The major opportunities for change that should be capitalized on in recommending new institutional arrangements.

Summary

Within group I there are three critical factors which determine a particular institution's ability to adapt to the Corps regional technical proposals: (1) the institution's geographic flexibility; (2) the scope of the institution's authority; and (3) the flexibility of the institution's revenue sources. The last critical factor will not be discussed in this section of the report as it will be covered below in the finance section.

Within group II there are several different types of critical factors which determine the extent to which the wastewater management agencies within the study area operate on a regional basis. For example, the level of coordination between agencies at the local, regional, and state levels is a critical factor as is the ability or inability of a regional planning agency to require local units of government to conform with its plan.

Similarly, there are a number of critical factors which stand either as obstacles to institutional modification or which provide opportunities for change. Political opposition to regionalism and the urban suburban conflict in the Cleveland area are examples of group III critical factors which impede change.

Enabling legislation which permits or encourages regional institutions, an awareness of the advantages of regionalization and federal law which encourages regionalism are group IV critical factors supporting institutional modification. These and other critical factors will be discussed below under the four general categories outlined above.

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Section I. Types of Existing Institutions

Within the Cleveland-Akron and Three Rivers Watershed area there are three basic types of institutions involved in the operation of wastewater treatment facilities; municipalities, county sanitary engineering departments (SED's) and the Cleveland Regional Sewer District. Ohio law also permits other institutions such as regional sanitary districts, conservancy districts and the Ohio Water Development Authority (OWDA) to operate and maintain treatment facilities. These entities have not yet been constructed within the study area and will be discussed below in Section IV.

Municipal Corporations - A critical factor in determining the ability of municipal corporations to assimilate new wastewater systems is the fact that cities can treat the sewage of other municipalities on a contractual basis. For example, Akron serves Cuyahoga Falls, Mogadore, Lakemore and some unincorporated areas in Summit County. There is no statutory limit to the number of other cities and towns a municipality may serve.

A second critical factor is the scope of municipal corporations' authority. Municipalities may plan, construct and operate sewers and treatment facilities, and acquire the real property necessary for such facilities both within and outside of the corporate limits. However, a municipality must compensate the county for lost revenue if property acquired outside the corporate limits is removed from the tax rolls. Of special significance is a provision in the Ohio Code authorizing cities to purchase land outside its limits to be used as a sewage farm (the Ohio code does not define the term "sewage farm").

Another critical factor is the regulatory authority vested in municipal corporations. Cities and village may require connections with the municipal sewer system and when two or more municipalities operate a joint system, they may prescribe terms under which public and private entities connect with the system. However, the regulatory authority of a municipality extends only to its corporate limits and not to other local governments which it services.

Counties - The Ohio Code authorizes boards of county commissioners to establish one or more sewer districts within their respective counties and if the county population exceeds 100,000 to create a sanitary engineering department. A critical factor in determining the capacity of counties to adapt to regional sewage treatment is the geographic flexibility of county SED's. County SED's may operate in any part of the county but not within the boundaries of municipalities unless authorized by the municipal corporation. SED's may treat the sewage of a corporation, individual, or public institution which is outside of the district's boundaries on a contractual basis.

The districts are authorized to plan, construct and maintain such sewers and treatment facilities as are necessary to dispose of surface water and sewage. Such facilities may be constructed within or outside of the district and within a municipality and the district may exercise the power of eminent domain both within and outside of its boundaries (but not outside the county).

Another critical factor is the authority of SED's to make and enforce rules and regulations for the construction and use of sewers in the county. Such rules apply to municipalities if the county constructs facilities within the municipality or treats a municipality's sewage.

Cleveland Regional Sewer District - The Cleveland Regional Sewer District is a newly created institution which is a critical factor because it marks the first attempt within the study area to organize a regional wastewater management institution. The district, which is authorized by state enabling legislation, was created by an order of the Cuyahoga Court of Common Pleas because of the failure of Cleveland and its surrounding suburbs to solve their sewage problems. Although the actual service area and treatment system remain the same the critical point of this new institution is that the management and ownership of the systems are now controlled by a regional board and not by Cleveland.

Under the provisions of Chapter 6119 of the Ohio Code, a regional sewer district may include the area in the unincorporated part of one or more contiguous counties, or in one or more municipal corporations or both. The district may construct, acquire and operate and maintain sewers and disposal facilities, acquire real and personal property by condemnation within and outside of the district, sell sewage by-products, provide treatment for areas outside the district, and regulate the construction and connection of sewage lines.

Section II. The Existing Areawide Management System

This section of the report will examine the extent to which wastewater management institutions within the Cleveland-Akron and Three Rivers Watershed are function together as a regional system. This section will discuss current efforts at the local, regional, and state levels to regionalize wastewater treatment and identify those factors which are critical to the success or failure of regionalization.

Local Level - A critical factor in determining the strengths and weaknesses of the existing areawide wastewater management system is the level of coordination between local wastewater institutions. At the present, there is limited cooperation between municipalities in that some cities treat the sewage of surrounding communities on a contractual basis. However, there are also significant examples of the absence of coordination at the local level because municipalities have no way of regulating sewer connections outside of their boundaries. Until recently, this problem has been particularly acute in the Cleveland area.

Regional Level - At the regional level, there are several agencies which are of critical importance in coordinating wastewater treatment operations. The Ohio Code authorizes the creation of county and regional planning commissions. Examples of such institutions within the study area are the Tri-County Regional Planning Commission and the Cuyahoga Regional Planning Commission. One critical factor is the geographic flexibility of planning commissions. Regional Commissions may be formed by the planning commission of a municipal corporation or group of municipal corporations and the county in which such municipalities are located or any adjoining county. County commissions may be established by a county or by the majority of municipal corporations in the county which have planning commissions (and therefore are considered regional for purposes of this report). Furthermore, any regional or county planning commission may join with other commissions to create a joint planning council. Another critical factor is the scope of planning commissions' authority. They may prepare plans and reports on regional goals, land use, and the locations of public

and private works and facilities. Commissions are also authorized to provide planning assistance to local governments and to review proposed plans for land use, transportation and public facilities. However, of critical importance is the fact that such commissions cannot require member municipalities to accept regional plans and that the commissions have no independent source of revenue.

Another regional institution within the study area is the Three Rivers Watershed District. The district was formed by the commissioners of the eight counties within the study area and has jurisdiction over the Cuyahoga, Chagrin and Rocky River drainage basins. Although the district is not directly involved in wastewater management, it is responsible for preparing a comprehensive plan for the development of water resources and has authority to designate restricted channels and floodways.

Another critical factor is the Northeast Ohio Areawide Coordinating Agency (NOACA) which serves as an Areawide Planning Agency (APO) for the study area and as a metropolitan A-95 clearinghouse. NOACA has jurisdiction over all counties within the study area except Stark County and membership in NOACA is open to all townships, cities and villages. As an APO, NOACA is responsible for developing one regional plan for sewages and sewage treatment facilities. NOACA has no formal power to require local governments to comply with its plans, however, as an A-95 review agency, NOACA is responsible for reviewing local applications for federal financial assistance. It is important to note that the review of local and regional plans has been delegated to county and regional planning commissions and that NOACA itself reviews only plans which extend beyond county lines. This purpose of the A-95 review process is to insure that the federal government does not fund duplicate or conflicting programs.

State Level - At the present time, the State agencies in Ohio which are critical factors in the operation of a regional wastewater management system within the study area are in a state of flux because of recently enacted legislation creating an Ohio Environmental Protection Agency (OEPA). Until enactment of this legislation, the Department of Health (DOH) was the principal state agency involved in sewage treatment. DOH was responsible for setting water quality standards, approving plans for treatment facilities, and inspecting treatment facilities to insure compliance with permits. The new legislation has

abolished the Water Pollution Control Board (an administrative arm of DOH) and transferred these functions to EPA. The OEPA is authorized to adopt effluent standards for discharge and is also permitted to require the person in charge of any sewage treatment works causing offensive pollution on account of inefficient operation to appoint a person named by the OEPA director to take charge of the works and secure the results demanded by the director. OEPA does not directly promote a regionalized solution to sewage treatment problems, it is a critical factor because its orders and water quality standards require more sophisticated treatment processes which in turn result in the economic attractiveness of large scale treatment facilities.

The new legislation also affects the Ohio Department of Natural Resources (DNR). DNR has had the responsibility for developing a comprehensive plan for the development, use, and protection of water resources for the entire state. The department has divided the state into five regions (the study area falls within the Northeast Region) and is preparing a plan for each region. This planning function has now been transferred to the Ohio EPA.

The Ohio Water Development Authority is the state agency responsible for funding treatment facilities and its role will be discussed in the section below on financial critical factors.

One other significant state agency is the Ohio Planning and Development Clearinghouse (OPDCH) which is located within the governor's office and serves as the Statewide A-95 agency. As part of its review function, the agency evaluates, reviews, and coordinates federally funded state, regional and local wastewater treatment facility planning and development.

Section III. Major Obstacles To Institutional Modification

Home Rule

The major obstacle to institutional modification within North-east Ohio is the strong commitment to home-rule government. This commitment is a critical factor because it makes any attempt at regionalization difficult.

The legal basis of the home-rule concept is Article XVIII - 3 of the Ohio Constitution:

"Municipalities shall have authority to exercise all powers of local self-government and to adopt and enforce within their limits such police, sanitary and other similar regulations, as are not in conflict with general laws."

Such a provision is the result of the traditional independence of local units of government and reflects local opposition to movement towards regional government.

Urban-Suburban Conflict

Another critical factor which has stood as a barrier to institutional modification is the urban-suburban conflict which exists in the Cleveland area. Prior to creation of the Cleveland Regional Sewer District, Cleveland provided sewage treatment to 31 surrounding communities on a contractual basis. However, Cleveland's authority to control sewer connections extended only to the city's limits. As a result, Cleveland had no way of controlling the increasing flow of sewage from suburban areas. At the same time, Cleveland has been under pressure from the federal government to upgrade its treatment facilities and thus has been caught in a bind between the federal government and an increasing volume of sewage which the city could not regulate. This problem was reduced when a court imposed sewer connection ban originally applying only to Cleveland was extended to the suburbs.

Another critical factor adding to the animosity between Cleveland and its suburbs has been the fact that the suburbs had no voice in setting the user fees charged by Cleveland. For example, for a while in 1971, Shaker Heights refused to pay an additional charge imposed by Cleveland.

However, this barrier to institutional modification appears to have been successfully circumvented by the order of the Cuyahoga Court of Common Pleas creating the Cleveland Regional Sewer District. The district's seven member board of trustees is composed of four trustees appointed by the mayor of Cleveland, one by the county commissioners and two by the suburban council of governments. The District is divided into two sub-districts, one encompassing Cleveland and the other the suburbs. Of the four members appointed by the mayor, two are permanent, one represents the sub-district which has the larger population and one represents the sub-district producing the greater volume of sewage. At the present time, the Cleveland sub-district has a larger population and produces more sewage. The mayor's appointments might change however as the population ratio between Cleveland and the suburbs changes.

The fact that the board is representative of Cleveland and the suburbs should promote greater cooperation and reduce the urban-suburban conflict. It is also important to note that with the formation of the regional district, the sewer connection ban has been lifted.

Section IV. Major Opportunities For Institutional Change

In spite of the obstacles to institutional change outlined above, there are also critical factors which stand as major opportunities for institutional change within the Cleveland-Akron and Three Rivers Watershed area.

Recognition of Regionalism - One important critical factor favoring institutional change is the realization among some professionals and institutions involved in wastewater management that a fragmented approach to wastewater treatment is no longer practical or desireable. There is a feeling that it is neither economical nor efficient for every small community to operate its own treatment facilities and that some type of regional or metropolitan approach to one or more of the various functions (treatment operation management etc.) would be more logical.

The Cleveland Situation - The creation of a sewer district for the Cleveland area is a critical factor for institutional change in several respects. First, this marks the first time that a truly regional wastewater management institution has been administratively created within the study area. Second, creation of the district may serve to break down the traditional opposition to regional government. Third, the fact that the district was imposed upon the area by the Cuyahoga County Court may serve as an impetus for local governments to work together in solving sewage treatment problems. In short, if the Cleveland Regional Sewer District works it will establish an important precedent and for institutional modification.

Statutory Provisions - Another critical factor is the opportunity for institutional change provided by provisions within the Ohio Code. The most important of these provisions is Chapter 6119 which authorizes the organization of regional water and sewer districts in any unincorporated part of one or more contiguous counties, one or more municipalities, or both. Because such districts are granted geographic flexibility and broad functional and regulatory authorities, they are of key importance in any consideration of institutional change.

Several other sections of the Ohio Code are also critical factors. Chapter 6115 provides for sanitary districts which may be established in one or more counties by petition to county courts of common pleas. Such districts may improve stream channels, regulate the flow of streams, provide a water supply, and collect and dispose of sewage and solid waste. The districts may acquire real and personnel property by condemnation, construct facilities outside of the district, regulate the construction of sewers within the district, and prohibit the discharge of wastes into the district's sewer systems.

Chapter 6104 authorizes conservancy districts which can also provide sewage treatment on a regional level. Conservancy districts may be organized in one or more counties and have a variety of functional authorities including flood control, irrigation, erosion control, water supply and sewage disposal. The district may construct facilities outside of its boundaries, has a power of eminent domain which is dominant over the rights of other local governments, and may regulate the construction of sewers and the discharge of waste into the district's system.

One other statutory provision which is a critical factor to institutional change is the newly created power of OWDA to establish a wastewater facilities service area if a governmental agency has not complied with a pollution abatement order of the Ohio EPA. OWDA *may include* within such an area any contiguous area necessary to achieve most efficient and economical treatment for the area. This provision is a critical factor because it provides impetus for local governments to solve sewage treatment problems.

Federal Policy - Another critical factor in determining the opportunities for institutional change within the study area is the policy of the federal government. Section 208 of the Federal Water Pollution Control Act Amendments of 1972 could greatly strengthen the federal role in promoting wastewater management on a regional basis. Section 208 requires the governors to identify areas within the state (or interstate areas) with substantial water quality control problems and to designate the

boundaries of such areas, planning agencies capable of developing effective areawide waste treatment management plans, and waste treatment management agencies. Thereafter, the Federal EPA would make construction grants only to designated agencies for works in conformance with the areawide plan. This new legislation will stimulate a trend towards regional wastewater planning and will have an affect upon existing institutional arrangements. Ohio has completed initial plans to permit the governor to comply with the requirements of Section 208.

FINANCIAL FACTORS

Introduction

The financial factors analysis for the Three Rivers Watershed District in Ohio is divided into one section on the State and a second section on local institutions. Each part will identify and discuss the restrictions and allowances under which institutions within the study area may finance wastewater management. In addition, the current level of wastewater expenditures and additional capacity remaining based upon available data are discussed.

On the state level, the most important financing institution for wastewater management is the Ohio Water Development Authority. The OWDA prefinances the entire cost (state, federal and local shares) of selected projects in the form of a loan which is payed back to the Authority over a period of years. This program promises to greatly ease the need of municipalities to sell revenue bonds to finance wastewater management.

On the local level in Ohio, counties and municipalities are currently responsible for financing wastewater management. Since they are generally well under the legislatively - imposed debt ceilings, these institutions are constrained in financing capacity by other factors; the voters' willingness to pay off future bond issues through additional taxes and user fees, and the ability of local institutions to sell bonds in the marketplace. A regional sewer district has recently become operational in Cleveland. Although it can potentially be a vehicle for financing major wastewater projects, it is too early to assess the full structure and importance of this type of institution since it has been in existence for such a brief period of time. The potential that the district offers is in flexibility of financing mechanisms and a large area which has the potential of supporting sizeable special purpose (wastewater) bond issues.

Section I. The State

The Constitution of Ohio sets forth a number of constraints and allowances for financing in general. Article 8, Section 5, states that "the state shall never assume the debts of any county, city, town or township, or of any corporation whatever unless such debt shall have been created to repel invasion, suppress insurrection, or defend the state in war." Wastewater management clearly does not fit any of the above definitions, however, through the Ohio Water Development Authority, a state agency, Ohio loans money to localities for wastewater management. Neither the State Statutes nor the State Constitution restricts such state loans or grants to a local or regional authority involved in wastewater management. The OWDA is an important state agency involved in wastewater management and is discussed in detail later in this section.

The limit on indebtedness of the state of Ohio is \$600,000 and this limit may be exceeded only with approval of a majority of the voters. During 1970, a \$780 million general obligation bond issues was approved by the voters. \$100 million of this issue was subsequently appropriated by the legislature to establish the Ohio Water Development Authority. Revenue bonds, unlike general obligation bonds are self-sustaining since they are retired from the revenues of the project which they finance and therefore are not restricted by the limit of \$600,000. While over 70 percent of recent local school bond referenda have been defeated in the past two years, state budget officials feel that wastewater issues are regularly passed. This is assumed to result in large part from the OWDA prefinancing program and from the general high priority of wastewater activities are perceived by the public.

The state budget cycle is biennial and involves the State Finance Agency, which prepares the budget in cooperation with state departments and agencies. The Governor then approves or vetoes the budget. Supplemental requests during the two-year period are acted upon by the state controlling board. This relatively short cycle does not particularly enhance long-range planning, finance agency officials feel.

Table 1 below depicts the capital outlay expenditures for each of the three fiscal years beginning 1967/68 by Ohio and its local governments. While the pattern in wastewater expenditures is irregularly upward, it appears that highway expenditures are being decreased in favor of other functions, such as welfare expenditures.

**TABLE 1: CAPITAL OUTLAY OF STATE AND LOCAL GOVERNMENTS IN
TOTAL AND FOR SELECTED FUNCTIONS 1967-70**

(Amounts in Millions of Dollars)

	<u>1967-68</u>	<u>1968-69</u>	<u>1969-70</u>
Water Supply	37.6 (3.2%)	53.8 (4.0%)	47.2 (3.3%)
Highways	511.7 (43.8%)	558.1 (41.8%)	555.3 (39.3%)
Education	291.6 (25.0%)	335.3 (25.1%)	323.7 (22.9%)
Sewerage	65.0 (5.6%)	71.4 (5.3%)	88.6 (6.3%)
Other	260.8 (22.4%)	316.8 (23.7%)	398.5 (28.2%)
Total	1,166.7 (100.0%)	1,335.4 (100.0%)	1,413.3 (100.0%)

According to the 1970 Census of Population, the State of Ohio had a population of 10,652,017. Therefore, the per capita capital-expenditures for the selected functions in 1969-70 would be:

<u>Water Supply</u>	<u>Highways</u>	<u>Education</u>	<u>Sewerage</u>	<u>Other</u>	<u>Total</u>
\$4.4	\$52.1	\$30.4	\$8.3	\$37.4	\$132.7

This compares to \$6.38 per capita expended in Illinois and \$6.91 per capita in Indiana for wastewater management (sewerage).

THE OHIO WATER DEVELOPMENT AUTHORITY

A number of recent legislative enactments have significantly expanded the wastewater financing capacity of the state. These represent a sensitivity of the legislature and the electorate to the wastewater financing needs in Ohio.

The most important of the recent enactments in the Ohio Water Development Authority Act (1967) which established a state authority to prefinance the entire cost (state, local, federal share) of wastewater management projects for areas under Ohio EPA orders. Localities are able to borrow needed funds from OWDA, which issues OWDA revenue bonds. These are paid back by localities which raise the needed monies to cover the payback and operating and maintenance expenses through general taxation, user fees and special assessments. In order for a community to be eligible to receive assistance from OWDA, it must be under an order from the Ohio EPA to upgrade its wastewater treatment.

OWDA operates on the assumption that the federal government will finance 30% and the locals 70% of capital construction costs. If the federal share should, for any reason exceed 30%, then the locals would be required to pay back commensurately less. Under this system, the State of Ohio actually pays nothing. As the Federal share increases and as local governments pay back loans additional funds become available to OWDA for prefinancing.

The basis for OWDA assistance began in 1968 when the state legislature appropriated \$100 million of a general obligation bond issue to the Authority for prefinancing to locals. At this time, substantially all of the original \$100 million has been lent out by OWDA.

The Authority has also issued \$145 million of its own revenue bonds. It is expected that a total of \$400 million in OWDA bonds will have been issued by December 31, 1972.

OWDA LOCAL TAKE-OVER

The second significant enactment of the legislature is Senate Bill 105, passed on December 31, 1971, and which authorizes OWDA to take over and operate municipal wastewater operations in default of Ohio EPA standards.

(This was previously a function of the Water Pollution Control Board which has been merged into the state EPA). In such a case, financing to correct the situation or otherwise effect modifications would be a responsibility of the Authority, which would implement a system of taxes, user charges or special assessments to repay OWDA funds. In many cases, the resources available to OWDA to finance such undertakings would be significantly greater and less costly (in terms of interest paid on revenue bonds) than to the municipality. For example, OWDA revenue bonds have received a high rating from Moody's Investors Service. This reflects a high degree of confidence by investors in the Authority's ability to meet interest and principal payments on outstanding bonds. Furthermore, such a rating is likely to result in a relatively low interest cost on bonds which are issued.

It is important to note that selected large municipal corporations often have at their disposal an additional number of financing tools, such as general obligation bonds, special assessments and tax anticipation bonds. While the interest costs of such general obligation bonds may be less than those available on OWDA revenue bonds, constraints such as debt ceilings, tax limitations and referendum requirements often decrease from the attractiveness and flexibility of the general obligation bond approach.

OWDA INDUSTRIAL PROGRAM

The Authority also operates an Industrial Loan Program where OWDA will issue revenue bonds to cover the costs of a wastewater project which will be leased by industry. It is required that the credit of the industry involved be sufficient to secure the bond sale. Upon retirement of the debt through paybacks to OWDA, the facility may revert to the industry unless otherwise specified in the agreement. This approach will reduce the cost to industry by enabling it to finance the project through tax-free municipal bonds which are less costly to industry than corporate bonds.

OWDA LOAN AGREEMENT

The OWDA loan covers the capital cost for construction plus an amount for supportive services (mostly engineering and construction) as well as an administrative fee amounting to .0035% of the loan. The agreement also fixes the interest rate on the loan to the rate currently expressed in the Bond Buyer's Index, which is adjusted on a quarterly basis. The interest rate for already outstanding bonds is not altered, of course.

OWDA PROGRESS REPORT

Table 2 below itemizes OWDA expenditures as of May 1, 1972.

<u>A. Local Government Agency Program</u>	<u>November 1, 1971 \$ Amounts in Millions</u>	<u>May 1, 1972 \$ Amounts in Millions</u>
<u>Applications Received</u>		
Proposed/Under Construction	\$265	\$291
Construction Completed	<u>14</u>	<u>27</u>
Total	\$279	\$318
<u>Estimated Total Project Costs</u>		
Proposed/Under Construction	\$644.7	\$691.5
Construction Completed	<u>3.9</u>	<u>13.2</u>
Total	\$648.6	\$704.7
<u>Agreements Signed</u>		
Proposed/Under Construction	\$227.0	\$238.2
Construction Completed	<u>3.9</u>	<u>12.7</u>
Total	\$230.9	\$250.9
<u>Funds Released</u>		
Proposed/Under Construction	\$193.0	\$204.7
Construction Completed	<u>3.8</u>	<u>10.9</u>
Total	\$196.8	\$215.6

B. <u>Industrial Program</u>	<u>November 1, 1971</u> <u>\$ Amounts in Millions</u>	<u>May 1, 1972</u> <u>\$ Amounts in Millions</u>
<u>Applications Received</u>		
Proposed/Under Construction	\$10	\$14
Construction Completed	<u>2</u>	<u>2</u>
Total	\$12	\$16
<u>Estimated Total Project Cost</u>		
Proposed/Under Construction	\$35.9	\$40.7
Construction Completed	<u>2.5</u>	<u>2.5</u>
Total	\$38.4	\$43.2
<u>Agreements Signed</u>		
Proposed/Under Construction	\$ 6.1	\$10.6
Construction Completed	<u>2.5</u>	<u>2.5</u>
Total	\$ 8.6	\$13.1
<u>Funds Available</u>		
Proposed/Under Construction	\$ 6.1	\$ 9.6
Construction Completed	<u>2.5</u>	<u>2.5</u>
Total	\$ 8.6	\$12.1

Section II. Local Institutions

Part II discusses Ohio local institutions-counties, municipal corporations, and special districts - which currently play a role in wastewater financing or demonstrate the potential for doing so in the future.

Although Ohio is a strong home-rule state, it is important to realize that cities, townships and other home-rule units have the functions of little autonomy in financing. The State legislature has preempted these units of government. A judicial interpretation of the home-rule amendment to the constitution has specified that all political subdivisions of the state are prohibited from levying any type of tax which is currently being levied by the state. The legislature may waive this pre-emption or use its pre-emptive right to require regionalism or otherwise supercede home rule.

The most important single source of tax revenue for the totality of local governments in Ohio is the property tax which the state does not levy. The property tax assessed value base is an important indicator of the overall financial capacity of institutions within the study area since the maximum permissible debt limit is expressed as a percentage of assessed value.

Another important source of revenue, particularly for those municipal corporations without a substantial property base is the payroll tax, more commonly known as the local income tax. While the state also levies an income tax, it has waived its pre-emption and allowed localities to adopt such a tax by charter, which all of the cities in the study sample (see Part I of Appendix) have done with the exception of Medina.

These taxes, among other purposes can be used to pay off general obligation wastewater indebtedness. The level of current indebtedness and remaining borrowing margin are analyzed in the following sections.

A. County Financing

Counties may create departments of public sanitation and operate wastewater management facilities. The financing of these facilities is constrained by the Ohio Uniform Bond Act which establishes debt ceilings and the procedures for borrowing money.

The overall indebtedness for all purposes for which debt may be incurred by the county without a vote of the electorate can never exceed the following limits: 3 percent of the value of taxable property under \$100 million; 1 1/2 percent of property between \$100 million and \$300 million; and 2 1/2 percent of the value of property in excess of \$300 million.

There are three major instances where wastewater debt does not count toward these limits, indicating that the legislature has considered the wastewater function so critical that it should not be unduly constrained by debt ceilings. For example, revenue bonds are exempt. Secondly, all general obligation and revenue bonds that are issued "for purchase, construction, improvement and extension of water and sewer systems to the extent that such an agreement is entered into with a regional district (created under Section 6119 of the Ohio Code) and which requires county payments" are also exempt. Finally, all general obligation bonds for sewage that total up to 2 percent of the taxable value of property that have been approved by the electorate are also exempted. All bonds and notes issued in anticipation of special assessments and taxes are not counted as part of total indebtedness.

Counties rely upon several financing tools for wastewater. The most important for financing large amounts over a long period of time are general obligation and revenue bonds. Intermediate-term financing is accomplished with special assessment bonds, which mature (must be paid off) in five years or less and which can be issued for an amount not to exceed the cost of the improvement. As county residents pay the annual special assessment, the bonds are redeemed. Tax anticipation bonds may be issued under similar circumstances. Both types of anticipation bonds are general obligations of the county.

Short-term and emergency financing is undertaken through borrowing of money from the state, federal government and other sources and from the issuance of notes up to 50 percent of the amount to be received from annual taxes or other anticipated revenues of the county or any part thereof. With a maximum maturity of six months, these notes enable the county to undertake emergency financing for operation, maintenance or any other cause.

Taxes on property are the primary source of revenue for counties, which may levy such taxes in amount up to 10 mills (one percent) per \$100 of assessed valuation annually. With approval by a majority of the voters, this rate may exceed one percent but it may never exceed three percent. Cuyahoga County in 1971 collected \$52,725,678 in property taxes; this represented approximately 40% of all receipts. State and federal grants accounted for the next largest receipt, \$23,647,000. Medina, Geauga and Summit Counties also rely upon property taxes as the primary source of revenue; in 1971 the amounts collected by the respective counties were \$1,073,714; \$1,033,642 and \$7,701,165.

Table 3 below depicts the borrowing margin available to the sampling of counties within the Three Rivers Watershed Study Area for which data is available, based upon maximum limits specified in the Ohio State Code. The figures for current indebtedness are approximate and do not include some long-term obligations such as long-term leases on buildings, but may include some types of debt that does not apply toward the permissible limit. In some cases, a public referendum is required before indebtedness can be incurred and it should be noted that this factor tends to keep indebtedness below the limit.

TABLE 3: BORROWING MARGIN FOR COUNTIES
 1971 (in dollars)

<u>County</u>	<u>Assessed Value of Property</u>	<u>Current Debt</u>	<u>Maximum Debt</u>	<u>Borrowing Margin</u>
Cuyahoga	7,272,000,000	33,900,000	180,300,000	146,400,000
Summit	2,090,000,000	9,568,000	50,750,000	41,192,000
Geauga	205,613,000	3,000,000	4,500,000	1,500,000
Medina	263,000,000	580,000	5,450,000	4,870,000

The limit on total indebtedness can be raised in two ways: to assessed value of property can be increased by the county assessor or the legislature can raise the debt ceiling. Presently, assessed value of property in Ohio is considerably less than market value of property. However, it should be noted that voter approval is necessary to incur indebtedness above one percent of the taxable value of property. Thus, in counties the important factors are the attitude of voters toward incurring debt and to a lesser extent the debt ceiling specified by law. Table 4 below illustrates the one percent limit beyond which counties must obtain approval of the voters.

TABLE 4: REFERENDA LEVELS OF DEBT
1971 (in dollars)

<u>County</u>	<u>Referendum Debt Level</u>	<u>Current Indebtedness</u>	<u>Maximum Indebtedness</u>
Cuyahoga	72,720,000	33,900,000	180,000,000
Summit	20,900,000	9,568,000	50,750,000
Geauga	2,056,300	3,000,000	1,500,000
Medina	2,630,000	580,000	4,870,000

Counties may choose, as several of the larger ones have, to finance capital expenditures for wastewater and related activities by issuing revenue bonds. Table 5 on the following page itemizes the debt, by type that is currently outstanding. This is based upon data provided by the county to Moody's Investors Service.

TABLE 5: BONDED COUNTY DEBT BY TYPE
1971

<u>County</u>	<u>G.O. Bonds</u>	<u>Rev. Bonds</u>
Cuyahoga	33,900,000	
Summit	1,915,500	1,120,000
Geauga	3,000,000	
Medina	580,000	

Multi-purpose revenue bonds are not listed in Table 5.

B. Regional Water And Sewer Districts

A potential important financing institution within Ohio is the regional water and sewer district authorized under Chapter 6119 of the Ohio State Code. The only such district currently in existence is the Cleveland Regional Sewer District which was established under a court order requiring Cleveland and a number of surrounding municipalities to form a regional district.

Regional districts need not comply with the provisions of the Uniform Bond Act, the Uniform Tax Act or any other restrictions applicable to financing. They have been granted the following powers:

- (a) Regional districts are permitted to make loans to all political subdivisions of the district and to issue bonds, notes and refunding bonds.
- (b) Regional districts are permitted to levy and collect ad valorem taxes (a tax based upon the value of property), special assessments and user charges to meet current expenses and to pay off current indebtedness. A referendum is required only when taxes will be used to pay off bonded debt.

It is difficult to assess the financial impact of these generic types of institutions because the Cleveland District has only recently been formed. Previously there had been none in Ohio. However, the potential benefit of a sizeable financial base which can be tapped for wastewater revenues can ease the burden of large capital expenses by spreading it over the political jurisdictions comprising the district. Additionally, because of their sizeable tax base, special district wastewater bonds have often received a favorable rating from Moody's Investors Service. This enhances saleability of the issue as well as leading to lower interest costs on bonds (thereby decreasing the cost of the project). Such has been the case in several other states where regional district bonds have received a high rating, while many of the municipalities within the district have poor ratings. In short, the regional concept in financing is synergistic: the sum of the benefits previously accruing to each of the political entities comprising it. Such may become the case in Cleveland as the Cleveland Regional Sewer District becomes operational.

A major inhibiting factor in the development of the regional concept could be the strong home-rule feeling in Ohio that is "threatened" when municipalities lose control over the wastewater management function. The Cleveland Regional Sewer District was established by court order and none has been voluntarily formed to date.

Ownership of all municipal facilities currently existing within the Cleveland District have been transferred to the district with operation remaining with the municipalities. The City of Cleveland has contributed the majority the facilities. As a result the residents of Cleveland will pay a lower rate than will those living in surrounding cities in the district. The resolution of a number of issues clouds the term short-term financial structure of the district. These issues include the provision requiring Cleveland to treat the sewage of other municipalities and assigning variable charges to different municipalities in order to even out differences.

C. Municipal Corporations

Home rule legislation permits municipal corporations to own and operate sewage treatment and disposal facilities. General code provisions applying to municipalities, the Uniform Bond Law and the Uniform Tax Law set forth the financial structure for doing so. The overall net indebtedness of a municipality shall never exceed four percent of total assessed value of property without a vote of the electorate. In charter cities where the city is permitted to levy taxes greater than one percent of property, the net indebtedness may not exceed five and one-half percent without a referendum. In all cases, the net indebtedness shall not exceed ten and one-half percent of property values assessed for taxation.

Exempt from the above limit are revenue bonds for all purposes and general obligation bonds for the purchase, construction, and improvement of water and sewer systems resulting from entering into a contract with a regional (6119) district. This contract would specify payments by the municipal corporation to repay bonds which were issued for the municipality by the district. Also exempted are bonds or notes in anticipation of special assessments or taxes. Such bonds must mature within five years and can be issued for the full value of any improvement. Notes in anticipation of revenues mature within six months and can amount to 50% of revenues.

Table 6 below illustrates the assessed value of property in each of the cities in the study sample and the maximum debt that each can incur. This has been calculated at 10 1/2 percent of property value, the maximum permissible limit. Also illustrated is the current bonded indebtedness, which may include some debt that is exempt from the limit. Long-term obligations such as leases, which are not fully included in the debt calculations tend to be relatively unimportant in the smaller cities.

The indebtedness that each municipality may incur cannot exceed the borrowing margin indicated in Table 6 unless the legislature increases the debt limit to more than 10 1/2 percent of the assessed value of property. To the extent that the initial capital costs of the systems exceed the borrowing margin indicated, debt limits will have to be increased.

TABLE 6 BORROWING MARGIN OF MUNICIPALITIES
1971 (in dollars)

<u>Municipality</u>	<u>Assessed Value of Property</u>	<u>Maximum Indebtedness</u>	<u>Current Debt</u>	<u>Borrowing Margin</u>
Akron	991,000,000	104,055,000	41,950,000	62,105,000
Bedford	73,000,000	7,665,000	622,415	7,043,585
Berea	72,000,000	7,560,000	1,304,403	6,255,597
Cleveland	2,885,000,000	302,925,000	NA	NA
Cuyahoga Falls	135,000,000	14,175,000	1,705,000	12,470,000
Lakewood	197,000,000	20,685,000	6,458,723	14,226,277
Medina	52,000,000	5,460,000	3,820,900	1,639,100
Shaker Heights	176,000,000	18,480,000	9,805,000	8,675,000
Willoughby	77,000,000	8,085,000	4,168,143	3,916,857

MANPOWER CONSIDERATIONS

Summary

Critical manpower considerations are those factors which impact upon the availability of operating and maintenance manpower for wastewater treatment facilities. They represent potential opportunities or constraints for the development of a regional wastewater treatment system. The nine critical manpower considerations which are discussed in this part are:

1. Job Image
2. Career Ladders, Transfers and Points of Entry
3. Job Displacement
4. Civil Service Regulations
5. Employees' Unions
6. Hiring Freezes
7. Compensation
8. Certification
9. Training Opportunities

In addition to an explanation and discussion of these factors as they relate to conditions in the Cleveland - Akron Metropolitan and Three Rivers Watershed Areas, Part II describes the existing operating and manpower situation in the Cleveland Standard Metropolitan Statistical Area, (SMSA). To summarize this situation briefly, there is a small shortage of wastewater treatment personnel in the Cleveland SMSA as the recommended total employment for the area is some eight percent higher than the current level of employment. The specific occupations where shortages do exist are the higher skilled level occupations of Assistant Superintendent, Operations Supervisor, Shift Foreman and Operator I.

Section I. Critical Manpower Considerations Discussion

The critical manpower considerations discussed herein may impact significantly upon the availability of operating and maintenance manpower for a regional wastewater treatment system.

1. Job Image

The image of wastewater treatment personnel has not been favorable in the past. However, the recent wave of concern for ecology and environment seems to have added some degree of respectability to treatment related occupations. Treatment regionalization may improve this image even further by introducing more sophisticated technology and attracting career people demanding higher salaries.

There does not appear to be significant job image problem with regard to treatment plant personnel in Ohio at this time. Recent publicity given to the water pollution control movement by politicians and interested citizens groups seems to be attracting people to this employment field. Further, because the overall employment situation is poor, persons who would not ordinarily think of seeking employment in the area of wastewater treatment are doing so. Thus, high unemployment and a surge of interest in cleaning up the environment have served to override the unfavorable job image stigma previously attached to work in the treatment field.

2. Career Ladders, Transfers and Points of Entry

Career ladders, transfers and points of entry are concepts used to describe an individual's movement within a given profession. A career ladder represents the various skill or development steps, arranged from the lowest level to the highest, in a career area. The concept of a career ladder in the wastewater treatment field has not been highly evident in the past because the majority of treatment plants have been small town operations employing a few people from the immediate surrounding area. The advent of the larger metropolitan treatment plants has made the career ladder concept more plausible for operating and maintenance personnel.

Transfers are lateral movements of a person from department to department or plant to plant. As a professional group, personnel in the wastewater treatment field do not exhibit a high degree of mobility. Transfers between plants are not frequent and when they do occur it is likely to be at the plant operator or assistant superintendent level.

Point of entry is that position or place where a person enters a field. A person may enter the wastewater treatment field as a laborer, technician, operator and/or other occupation, depending upon his skills and the civil service the state certification and the employer's requirements covering a given position.

Career ladders, transfers and points of entry may take on increased significance in the wastewater treatment field as regional systems are organized. Career ladders will be easier to develop due to the wider scope of the treatment system and the change in skill requirements for handling the new system. Transfers will perhaps become more necessary within plants and/or within regions as the skills required by personnel in the field become more specialized. Finally, the development of regional wastewater systems may signal a shift in the point of entry structure which exists in the wastewater treatment field today. For example, changes in treatment standards and technology may increase the demand for technicians and simultaneously decrease the need for laborers.

3. Job Displacement

Job displacement is a significant cost consideration in any planning decision affecting an identifiable geographic area. In developing a regional wastewater system the job displacement factor must be weighed against the potential benefits to be derived from the system. Alternative systems should be considered as one system may clearly cost less in terms of job displacement than another. For example, a regional wastewater treatment system which incorporated all regional treatment in one large area would result in significant job displacement. Conversely, a regional system that proposed the combined use of a regional authority with existing plants would cost less in terms of job displacement.

4. Civil Service Regulations

Throughout the country various state and local jurisdictions have developed civil service systems to regulate the jobs of public employees. These civil service systems establish eligibility requirements for job positions, set salary ranges, use job advancement tests, and incorporate insurance and retirement plans. Because civil service systems are established by individual jurisdictions, salary levels, testing procedures and retirement plans vary from jurisdiction to jurisdiction. The degree of variation in civil service between jurisdictions can affect the chances for a smooth merger or coordination of employment policies, and thereby either encourage or inhibit the development of a regional system.

Civil service systems do operate in the major cities in the Cleveland-Akron Metropolitan and Three Rivers Watershed Study Area. The systems differ substantially with regard to salary level. For example, the starting salary for a plant manager is \$17,000 in Cleveland and \$12,000 in Akron. In addition, the municipal civil service systems do not adequately meet the screening requirements for personnel in the treatment field. In Cleveland, the Utilities Department has drawn up its own specifications for jobs within the Department but the City Personnel Office's requirements for these same positions do not adhere to the Department's specifications. Consequently, the Department has difficulty staffing from Personnel Department referrals.

5. Employees' Unions

Unionization in wastewater treatment facilities is a function of size. Normally, treatment facilities are not unionized unless they are large enough to serve one half million people or process fifty million gallons per day. Attracted by big operations, the unions could certainly influence the manpower situation in any regional wastewater treatment system incorporating the use of large facilities. Areas where union practices and policies could have an effect include: hiring and firing practices, the compensation schedules, benefit plans, training practices and other elements of staffing and management.

Employees' unions are common in the study area. Cleveland's wastewater treatment personnel are covered by individual trade unions. In Akron and Euclid, the State and Municipal Employees Union bargains for treatment plant personnel. The unions have presented some problems with regard to the Federal Environmental Protection Agency's (EPA) wastewater treatment management training programs in the area. Demands such that trainees be given time and a half for classroom training have created difficulties for EPA.

6. Hiring Freezes

Hiring freezes do impact upon the wastewater treatment manpower availability in towns and municipalities. The City of Akron and Cleveland have both experienced a recent freeze on hiring due to the heavy financial burdens of the cities. A regional wastewater system may relieve some of the financial strain which these and other municipalities experience by spreading the operating and maintenance costs for treatment over a large geographic base.

7. Compensation

Non-competitive salaries and benefits are characteristic of the wastewater treatment field. A recent study by the Water Pollution Control Federation* resulted in the finding that the earnings of wastewater treatment personnel run from 20 to 50 percent below the wages earned by persons performing similar functions in private industry. Low salaries tend to encourage a high rate of turnover among plant personnel. People take jobs in the plants but will move into state or Federal employment or private industry as soon as they have enough training to attract a better salary. Non-competitive salaries and benefits could severely hamper the development of a regional wastewater treatment system as the recruitment of educated, experienced and trainable personnel would be difficult.

* The Water Pollution Control Federation is an international organization comprised on 59 member associations, most of which are State associations of persons interested professionally or otherwise in water pollution control. Established in 1929, the Washington, D.C. - based Federation has a membership of 22,000, prepares a number of publications, and conducts research in the area of water pollution control.

There is a significant degree of disparity between the salaries paid to persons in the wastewater treatment field in the Cleveland SMSA and salaries paid in Akron. Differences in starting salaries run from \$3,000 to \$5,000.

8. Certification

States have been adopting certification requirements of wastewater treatment plant operations from 1918 to the present. Today, 34 states have mandatory certification programs and all but two of the remaining states have voluntary programs.

Ohio was one of the early leaders in establishing mandatory certifications of water and sewage plant operators. Its system is considered to be as good or better than most state's systems. The Ohio Code recognizes four classifications of wastewater works based on complexity of treatment, equivalent population served, downstream use and potential health hazards. The State certifies four classes of operators to operate plants and requires higher levels of training and experience as an operator moves from Operator I to Operator IV certification.

9. Training Opportunities

The opening up of wastewater treatment manpower training opportunities will aid in the development of regional wastewater treatment systems. The changes in technology and in water quality standards as well as the changes in the design of the overall treatment system suggest that additional manpower will be needed and that the qualifications of personnel currently employed will have to be upgraded. If training opportunities are not adequately available in a region, the development of a regional system for wastewater treatment will be severely hampered. Thus, the absence or existence of training programs will affect the availability of skilled waste treatment personnel.

The EPA and the Operating Training Committee of Ohio, Inc. are providing the major wastewater treatment manpower training programs in the study area. EPA is offering two grant programs. The first, as provided in Section 104(g) (3) of the Water Pollution Control Act Amendments of 1972, affords training opportunities at the grade level to persons interested in careers in water pollution control. Table I shows the grants awarded through this program from 1970 through 1972.

Table I: Manpower Training Grants Administered By The Federal Environmental Protection Agency In the State Of Ohio, Under Section 104(g) (3) Water Pollution Control Act Amendments of 1972.

Grantee	Date of Original Grant	Amount of Grant (\$)	1970	1971	1972
Ohio State	1963	\$53,221		\$72,466	
U. of Cincinnati	1963	28,323		59,154	
U. of Toledo	1965	18,949		27,927	\$31,642
Case Western	1971			64,172	

Source: EPA, Office of Water Programs, Training Grants Branch.

The second EPA grant program is administered by EPA and funded by the U.S. Department of Labor, Manpower Administration under the Manpower Development and Training Act of 1962 (MDTA) as amended. Under, this program, EPA is sponsoring the training of 20 operators at Columbus Technical Institute, 20 operators at Sinclair Community College, 11 Ohio operators at Fahkahatchee Environmental Study Center in Goodland, Florida, and 3 Ohio operators in Delgado Junior College in New Orleans, Louisiana.

The Operator Training Committee of Ohio, Inc., chartered in 1964, is working to develop a comprehensive training program at the state level for all water and wastewater-utility personnel. A nonprofit corporation, the Committee is directed by members of the Department of Health and the Ohio Water Pollution Control Conference among others. It operates with money provided by the State Departments of Health and of Education, and by registration fees. It's thirty-five hour to sixty hour courses are offered at night at local high schools throughout the state.

Section II. Existing Manpower Situation

The U.S. Environmental Protection Agency (EPA) and the U.S. Department of Labor (DOL) have recently completed a sample survey of wastewater treatment facilities in the Cleveland SMSA. The results of this survey and information concerning manpower submitted in the Existing Institution reports provide a picture of the existing manpower situation in the metropolitan area.

The EPA/DOL data shows that the recommended manpower for the SMSA is 8% higher than the total manpower currently employed. (See Table II) There seems to be a significant shortage of Operations Supervisors and Shift Foreman the recommended level of employment for both of these occupations is approximately a 70% increase over the current level.

The hiring freeze in the City of Cleveland, which began in February, 1970, may explain some of the manpower shortage existing in the SMSA. Officials in EPA and in the Ohio State Department of Health mentioned that budget and personnel problems plagued the City's Utilities Department.

Table III indicates a high number of vacancies in the Shift Foreman position. Most of the personnel turnover, that is the change in personnel over a period of a year, appears to be occurring in the occupation of laborer.

TABLE II
OPERATING AND MAINTENANCE
MANPOWER OVERVIEW IN THE ST LDY AREA

Selected Wastewater Treatment Plant Occupations	Current Total	Authorized Total	Recommended Total	Recommended Employment Minus Current Total Employment
Total (All Occupations)	597	592	646	+49
Superintendent	47	47	37	-10
Ass't. Superintendent	22	22	26	+ 4
Operations Supervisor	15	15	25	+10
Shift Foreman	16	18	27	+11
Operator II	84	84	78	- 6
Operator I	129	129	140	+11
Maintenance Supervisor	11	11	11	0
Mech. Maint. Foreman	7	7	5	- 2
Mechanic II	4	4	5	- 1
Mechanic I	4	4	4	0
Maintenance Helper	7	7	7	0
Electrician II	2	2	2	0
Electrician I	7	7	7	0
Chemist	7	7	8	+ 1
Laboratory Technician	16	16	22	+ 6
Storekeeper	-	24	24	0
Clerk Typist	24	2	2	0
Auto. Equip. Operator	2	2	2	0

Selected Wastewater Treatment Plant Occupations	Current Total	Authorized Total	Recommend Employment Minus Current Total Employment		
			Recommended Total	Total	Employment Minus Current Total Employment
Custodian	2	5	5	0	0
Painter	5	119	148	+22	+22
勞工	126	60	61	+1	+1
Other	60				

Source of Data: Inflated EPA/DOL Data - Cleveland Ohio, Table 1 - Employment and Earnings Data By Treatment Type: All Treatment Types Combined

TABLE III
 CURRENT OPERATING AND MAINTENANCE MANPOWER VACANCIES
 AND LABOR TURNOVER FOR THE PRECEDING YEAR IN THE SMSA OF CLEVELAND

Selected Wastewater Treatment Plant Occupations	Job Vacancies			Accessions			Labor Turnover	
	Current Total Job Vacancies		Jobs Vacant 1 Mo. or More	New Hires From Other Plants Only		Separations		
	Total	Vacancies	Total			Total		
Total (All Occupations)	38		32	83	9		31	
Superintendent	-		-	2	-		-	
Ass't Superintendent	3		33	3	1	0	0	
Operations Supervisor	-		-	2	2		2	
Shift Foreman	12		12	8	0	2	2	
Operator II	-		-	11	0		3	
Operator I	3		2	9	0		4	
Maintenance	-		-	-	-		-	
Mech. Maint. Foreman	-		-	-	-		-	
Mechanic II	-		-	-	-		-	
Mechanism I	-		-	-	-		-	
Maintenance Helper	-		-	-	2		2	
Electrician II	-		-	-	-		-	
Electrician I	-		-	-	-		-	
Chemist	-		-	-	-		-	

Selected Wastewater Treatment Plant Occupations	Job Vacancies				Labor Turnover		
	Current Total Job Vacancies	Jobs Vacant 1 Mo. or More Total	Accessions New Hires From Other Plants Only	Separations	Total		
Laboratory Technicians	5	0	0	-	1		
Storkeeper	-	-	-	-	-		
Clerk Typist	-	-	2	-	-		
Auto. Equip. Operator	-	-	-	-	-		
Custodian	-	-	-	-	-		
Painter	-	-	1	-	-		
勞工	15	15	37	6	17		
Other	-	-	-	-	-		

Source: Inflated EPA/DPL Data - Cleveland, Ohio, Table II - Job Vacancy and Labor Turnover
 Dated By Treatment Types Combined

PART V
INITIAL EVALUATION OF N12 ALTERNATIVES

Introduction

This memorandum presents a preliminary evaluation of the institutional impacts of the twelve wastewater management alternatives being considered for the Cleveland-Akron Metropolitan and Three Rivers Watershed Area. This memorandum has been developed to assist the Buffalo District Corps of Engineers in screening and selecting the technical alternatives which, from a total resource management viewpoint, provide the best solution to the wastewater management problems within the study area.

II Summary

The major institutional impacts of the twelve technical alternatives are the result of four factors which are summarized as follows:

A. Financial

Most of the Buffalo District office technical alternatives, especially those designed for the no discharge of critical pollutants (NDCP) standard, require a level of capital financing which greatly exceeds current capital expenditures for wastewater management. Although there are numerous differences between alternatives in terms of capital, operation and maintenance and replacement costs, these are over-shadowed by the large initial capital investment required for any alternative. Under the existing institutional structure, the impact of these costs would fall most heavily on local institutions - municipalities, counties and special districts. Because the financial capabilities of existing institutions are limited, a number of changes will be necessary in order to finance any of the proposed alternatives. Possible modifications include altering legislative constraints and allowances such as debt limits and bonding authority and realigning the local, state and federal financing relationships.

B. Regionalization

All alternatives require a greater degree of regionalization and intergration of systems than currently exists within the study area. Regionalization as the term is used here means any type of increased consolidation or cooperation in the use of wastewater facilities. This will be determined by local desires and could mean anything from increased use of contractual authority, to regional management or actual consolidation of plants and facilities. However, many existing institutions do not have sufficient authority to develop and operate on a fully regional basis. Therefore, to the extent that regionalization is adopted, institutional arrangements capable of planning, financing and operating regional systems must be developed.

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C. Re-Use

Most alternatives integrate wastewater management with other resource (water, land, people) programs. Examples of this integration are water supply, use of sludge for land rehabilitation, crop production, flood control, recreation and power plant siting. Accordingly, institutional arrangements must be designed to provide sufficient authority to assure that wastewater management programs can fully capitalize upon the resource integration opportunities of the technical alternatives.

D. Land

In order for any of the alternatives to operate effectively, new institutional emphasis upon land-use regulation is necessary. Although the land impact varies among alternatives, in order to control suburban build-up to control storm runoff, and to protect treatment sites, supplementary land utilization programs must be developed and implemented.

III Institutional Impacts

A. Impacts of Financial Requirements

Impact Upon Institutions

This section discusses the impacts of the various alternatives upon existing institutions within the study area. The impact analysis will focus upon the ability of local, regional and state institutions to finance the capital, operating and maintenance and related costs associated with the alternatives.

Current Financing Levels

Counties, municipal corporations and special districts can be characterized as operational agencies because in addition to financing part or all of the wastewater management costs in their jurisdiction, they generally operate the facility as well. Under the existing institutional arrangements within the study area, it would appear that the majority of the alternatives involve considerably greater costs than the current expenditures of all institutions in the study area.

Consider the total annual cost of the least costly level 2 system which treats both stormwater and wastewater. This annual cost, calculated to include the capital cost as well as operating and maintenance expenses is approximately \$325,000,000. This contrasts to a \$225,000,000 annual cost for the least costly level 1 system which treats both stormwater and wastewater.

When considering wastewater treatment alone, the least costly system in terms of annual expenditures would require \$130,000,000 in annual financing if treating to level 2 and \$100,000,000 if treating level 1. It is important to note that the systems which propose to treat only stormwater for each alternative are generally significantly more expensive than pure wastewater systems and would therefore impose a greater burden on institutional financing mechanisms. For example, the total annual costs of level 2 stormwater treatment only range upward from \$185,000,000 and exceed \$125,000,000 for level 1 treatment.

During 1969, the capital expenditures for wastewater facilities throughout the entire State of Ohio were approximately \$90 million. Overall Ohio allocated \$1.413 billion for capital expenditures for all purposes. In recent years the state's wastewater expenditure level has increased with the development of the Ohio Water Development Authority as a prefinancing mechanism of the federal and local shares for selected projects. As of May 1, 1972, the Authority had obligated \$251,000,000. To be eligible for OWDA grants under the Local Government Agency program a municipality must be under a pollution abatement order.

Using the assumption that the long-term cost of borrowing funds will approximate 7.00% annually and that this is compounded annually until 2020, then the annual requirements of the various systems (as expressed above) are depicted in the appendix to this report. The appendix graphs the costs of the various systems in a series of charts. These are useful in comparing the capital, operating, and maintenance costs of the various alternatives. In the absence of phasing data or capital costs, it would appear that most of the proposed systems require an annual capital expenditure that far exceeds current wastewater expenditure levels within the study area. The fact that a quantum jump would be necessary to move from present expenditures to those required for the most of alternatives remains the overriding funding consideration. It is more important than the relative cost differences among alternatives. The fact that federal contributions can reduce the local financing burden is examined later in this report.

Only three of the systems would not be as grossly out of line with current expenditures, however, they would still strain currently annual capital cost of \$45 million. This is the least expensive level 2 wastewater system. Annual capital costs are slightly less for level 1 wastewater alternatives numbers one and five. These capital costs are approximately 50 percent of statewide capital expenditures ~ 1969. Note, however, that stormwater system costs exceed current state expenditures by a substantial margin for every alternative.

Plant Abandonment

Even the three systems discussed above whose capital costs are not far out of line with current expenditures might well impact upon current institutional arrangements because of plant abandonment. A number of plants within the study area have not completely paid off their long-term outstanding indebtedness. Such indebtedness constitutes an obligation of the taxing of a general obligation issue. Also, revenue bonds which are not backed up by taxing power are another type of indebtedness to be paid off. While such outstanding debt is an addition to the capital costs the magnitude of such abandonment costs is overshadowed in importance by the size of capital costs for the various alternatives.

Financing Potential

Local institutions within the study area often have significant funding capacity remaining under the constitutional and legislatively-imposed debt limits. Additionally, there are a number of cases where wastewater financing is exempt from such limits as well as other factors which render such limits less constraining

than they might otherwise be. First, overall limits on indebtedness are tied to the assessed value of taxable property. Since assessed value generally represents only a fraction of market value, as is the case in Ohio, it can be periodically raised to increase the debt ceiling. At the same time, the tax rate on property could be lowered to keep property tax levels consistent with what existed before the rise in assessments. While the net effect on property taxes would be zero, the debt ceiling would be higher.

The second factor which enables wastewater activities to be financed above the existing debt limit is the issuance of revenue bonds which are self-sustaining and generally exempt from such limits. These bonds are an important means of financing wastewater management in Ohio. OWDA, for example, relies exclusively on such bonds and expects to have outstanding 400 million by the end of 1972 (after four years of operation). Through May of 1972 OWDA had issued \$105 million with another \$40 million to be issued during the summer of 1972.

A third important factor is the large number of exemptions of specified wastewater activities from statutory and constitutional debt limits (See critical factors report Part IV).

The above three factors tend to support an increased wastewater expenditure of the magnitude suggested by the twelve alternative proposals without altering existing constitutional and statutory debt ceilings.

Determinants of Funding Capacity

While it is probable that sufficient authority exists (or can be created through institutional modification), there are a number of factors which suggest that the ability to pay off such indebtedness (adequate funding for any alternative, especially the more costly ones) is not likely under existing institutional practices.

One factor is voter sentiment, which is critically important since many general obligation bond issues require voter authorization. The probability of the voters approving a massive bond issue in excess of \$1 billion for the study area (as each of the stormwater alternatives might indicate) would not seem high. Such an issue would necessitate a massive tax increase.

Another factor would concern the general bond market conditions at a moment in time. For example, high prevailing municipal bond interest rates tend to increase the economic burden of the project. Additionally, a number of smaller local institutions in the study area either have a relatively low bond rating or have not established a rating at all because they have issued few or no bonds. This tends to make prospective bond issues difficult to sell in the future. Partially for this reason, the OWDA was established to prefinance the local and federal shares of selected wastewater projects. UNder such loans, resident users repay OWDA for the facility through a system

of user charges. Such fees would have to be greatly increased over current levels to meet all or a significant portion of the debt service requirements of any alternative.

Institutional Modification

The federal clean water legislation, as passed, will significantly alter the wastewater financing pattern on a nationwide basis. It is important to recognize that the Federal Water Pollution Control Act proposes to allocate up to \$18 billion over the next three years to local institutions for wastewater management. Of this amount Ohio would receive approximately \$1 billion. The entire authorization of \$5 billion for the first year, it should be noted, is not much more than the total capital cost of the most costly combined stormwater and wastewater system proposed for the study region. This is an indication of the size of the burden imposed by the proposed systems.

Several of the provisions of the Act are particularly relevant in terms of local financing. First, it proposes to establish within the federal government a financing authority which will guarantee the revenue bonds of selected localities. In turn, the federal financing authority will require that all institutions which propose to use federal funds establish a system of user charges for both industrial and domestic users of treatment facilities. Such a system of user fees could shift the emphasis in wastewater financing further toward revenue bond financing and away from general obligations which are paid off through general taxation.

A second important provision of the Act will require industrial users of federally-supported projects (under the Act) to repay to the government (part to the federal government and part to the local government) a portion of the capital costs. The amount which industry will be required to repay will be directly proportioned to the extent to which they use the system.

These provisions therefore have the potential for significantly increasing the financial capacity of the study area. By increasing to 75 percent of total capital costs the federal share, the burden of the alternative systems would be commensurately less. Additionally, it is reasonable to expect that a sizeable portion of these capital costs could be absorbed by commercial users in such areas as heavily-industrialized Cuyahoga County. The extent to which industry can pay such costs and whether these costs will be passed on in the form of higher prices are issues which should be addressed.

The Phasing of Costs

This impact analysis has been based on a type of phasing where all capital costs have been allocated evenly for each year of the life of the project. However, an important institutional consideration is the probable requirement of a substantial capital outlay over a relatively brief time span. Even though the repaying of bonds for plant construction may be stretched over a period of years, the various systems are likely to require disproportionately high capital outlays during the early years of the system to pay for construction costs of plants, conveyance systems and other major capital facilities.

If the required capital is to be raised by the issuance of general obligation and/or revenue bonds, then such factors as bond market conditions, authorization to issue, sell and refund selected types of bonds, tax and user fee authority and public referenda patterns become important. The financial implications from an institutional standpoint could suggest the need for modification of the roles of state and local agencies and the federal government in terms of financial sharing arrangements.

Those alternatives which phase capital expenditures over a relatively lengthy time period would, of course, have a less obvious institutional impact. The technical requirements will in large part determine feasibility of lengthy phasing periods.

B. Impacts of Regionalization Requirements

All of the alternatives require a greater degree of regionalization than presently exists within the study area. However, not all of the alternatives require the same degree of regionalization. Because the different components of the proposed plans can remain localized or be regionalized independently of other components, the regionalization of the different components will be discussed separately.

Sewage Treatment Plants

By this time, there are more than 120 treatment plants in operation within the Three Rivers Area. However, the alternative plans would utilize from 35 to 24 plants. (Plan 12 is an exception and would not use any conventional treatment plants). The fact that each alternative will require the elimination of approximately 100 plants will have a significant impact upon existing institutional arrangements.

It is also important to note that while the different plans use different numbers of wastewater treatment plants, the differences among impacts are not as significant as the impact which each of the plans would have upon existing institutions.

Stormwater Treatment

There is a much wider variation among alternatives with respect to the regionalization of stormwater treatment than is the case with respect to sewage treatment. For example, Plans 1 and 2 would utilize 132 stormwater treatment plants, Plan 4 would use 32, and Plan 3 would use six plants (Plans 3 and 4 would also utilize wastewater facilities during off-peak hours).

Sludge Disposal

There is also a wide variation among alternatives with respect to regionalized sludge disposal. For example, under Plan 1 each plant would incinerate its sludge and dispose of it at local land-fill operations. In contrast, under Plan 8, 13 plants would share a pipeline and pump sludge to strip-mined areas.

The main impact of regionalization falls upon local institutions which are involved in the construction and operation and maintenance of treatment facilities. The number of plants used determines the number of institutions which will have a facility located within their jurisdiction. As the number of plants is reduced, the opportunity for consolidating existing institutions increases.

Furthermore, the number of plants utilized determines the number of institutions affected by the abandonment of existing plants. As the number of institutions increases, so do the institutional problems associated with assuming the outstanding debts and compensating the owners of abandoned plants. The number of plants utilized also affects interrelationships among existing institutions. As the number of plants is reduced, the geographic area and number of political sub-divisions served by each plant increases. This creates an increased need for contractual arrangements between the institutions within treatment plants and those with plants. Furthermore, if the geographic area served by a plant becomes regional rather than local, the enabling legislation of the institution operating the plant may have to be changed to allow it to serve the additional area(s).

The use of spray irrigation sites affects institutions outside of the study area. Institutions which would be affected include agencies responsible for the relocation of displaced people and agencies involved in the acquisition of land treatment sites. All land alternatives would also result in the previously discussed types of problems which are associated with the abandonment of treatment plants.

The regionalization of stormwater management and sludge disposal also has institutional impacts. The different alternatives utilize several different types of stormwater treatment systems. The number of stormwater treatment plants used affects interrelationships among institutions as was discussed above with respect to wastewater treatment plants. The regionalized sludge disposal system, which would use a pipeline from the study area to the strip-mined lands, would require at least some institutions to interconnect their sludge disposal conveyance systems. The fact that some conveyance systems would be interconnected would require some types of operational and institutional mechanisms to regulate the use of common pipelines.

The ability of existing institutions to adapt to the regional requirements of the technical alternatives depends largely upon the institutions' geographic flexibility. The different types of agencies involved in the operation of treatment plants (municipalities, counties and the Cleveland Regional Sewer District) have different levels of geographic flexibility. Ohio municipalities serve the area within their boundaries and are permitted to treat the sewage of other municipalities on a contractual basis. Thus, municipalities have limited geographic flexibility. Counties are restricted in that they may not provide sewer service within municipalities unless authorized by the municipal corporation to do so. However, county sewer districts may treat the sewage of corporations, individuals or public institutions outside of the district's boundaries on a contractual basis. Under Chapter 6119 of the Ohio Code, the Cleveland Regional Sewer District may include the area within the unincorporated part of one or more contiguous counties, within one or more municipalities or both.

Other institutional reforms would also be required by the need to regionalize. Cooperative agreements would be needed to regulate the use of shared facilities such as conveyance systems, storage facilities and spray irrigation sites and to provide for assumption of the debts of abandoned facilities. Furthermore, because of the regional nature of the technical alternative, some type of agencies or agency with areawide authority and jurisdiction would be needed in order for the system to function effectively. Such an agency should have responsibility for the overall planning of the systems and authority to regulate operation of the regional system.

At the present, there are several regional institutions in the Three Rivers Area, but none has sufficient authority and jurisdiction to effectively control the operation of a wastewater management system for the entire area. County planning commissions such as the Cuyahoga and Tri-County Regional Planning Commissions do not have authority to require member municipalities to accept regional plans. The Three Rivers Watershed District has worked out an agreement with NOACA to develop an areawide water resources plan, but lacks specific authority to enforce a control wastewater planning or management in the area.

In order for these regional planning institutions to fulfill the requirements of regionalization, several modifications would be necessary. First, there is a need to develop uniform areawide objectives for wastewater management in the Three Rivers Area and to coordinate enforcement of these objectives. Second, regional planning agencies need some type of increased authority to implement regional water and land resource plans. If local agencies cannot be required to coordinate the planning, construction and operation of their facilities at the regional level, then implementation of any technical alternative will be difficult. Third the people in Ohio must be provided with the facts on proposals such as land treatment. If the merits of one system or another are to be accepted then planning agencies at the local and regional levels will have to carry out an effective and thorough education program.

C. Impact of the Re-Use Requirements

Another feature of the 12 wastewater management alternatives being considered for the Three Rivers Area is that the alternatives integrate wastewater management with natural resources management in general. The technical alternatives accomplish this integration by planning for the re-use of wastewater and wastewater treatment by-products which in turn results in institutional impacts. The impacts of the different re-uses will be discussed below.

Not all of the technical proposals provide for re-use to the same degree. For example, Plan 1 will re-use treated sewage only for stream-flow augmentation and will utilize sludge as a soil-conditioner.

As a general rule, the institutional impact and the need for new institutional arrangements increases as does the re-use potential of a particular plan. The institutional requirements of the different re-users are as follows:

1. Crop Production

Some significant institutional impacts within and outside the study area would be caused by the utilization of spray irrigation sites for crop production. The institutional impacts of using wastewater to grow crops would vary depending upon whether the public or private sector is involved in producing crops. If a public agency is to grow the crops then either a new agency would have to be created or the enabling legislation of an existing agency (wastewater or other) would have to be amended to authorize such activity. This problem would not arise if the land remained in private ownership or if the land were acquired by a government agency and leased to the private sector. Another possible program conflict created by the use of wastewater for agriculture would be with the Federal Soil Bank and agricultural subsidy programs. Operation of spray irrigation sites would have to be coordinated with the appropriate Federal agencies to avoid possible conflict with Federal programs as well as state land use programs.

2. Recreation

Some of the technical alternatives would use wastewater facilities for recreational purposes. For example, storage reservoirs might be used for hunting and fishing, spray irrigation sites might be used for open space and green belt areas and all alternatives would provide treated water for stream flow augmentation. One of several alternative institutional modifications would be necessary in order for wastewater to be used for recreation. Either the enabling legislation of existing wastewater management agencies could be modified to authorize them to provide recreational services or the existing wastewater management agencies would have to establish cooperative agreements with other agencies responsible for recreational development and operation.

3. Land Rehabilitation

The use of sludge for land reclamation and soil enrichment is another way in which the alternatives integrate wastewater management with overall resource management and would raise institutional problems. First, it would be necessary to acquire, lease or make contractual arrangements to use the strip-mined areas or agricultural land to be used for sludge disposal. Second, land reclamation should be coordinated with other public agencies involved in land-use planning to insure that restoration programs serve public needs to the fullest extent possible. Third, if wastewater management agencies are not to be responsible for the reclamation and enrichment programs, it will be necessary to establish working arrangements with another type of public agency. It is important to note that the Cleveland Regional Sewer District is authorized to sell sewage by-products under existing legislation.

4. Power Production

One synergistic use of wastewater would be to utilize the storage lagoons at spray irrigation sites as heat sinks for industrial and/or electric utility installations. Certain institutional modifications would be necessary if such a synergism is to be realized. The institution responsible for operation of the spray irrigation site would need authority to provide wastewater for such purposes or would need authority to operate power plants itself. If the water is to be leased to private users, a system of equitable user fees would have to be established. Similar arrangements would also be necessary if land treatment sites are used for pumped storage electrical generation.

5. Water Supply

One of the primary re-uses of wastewater would be for water supply. Municipalities and counties are authorized to provide water supply as well as wastewater treatment. The Cleveland Regional Sewer District although not established for water supply, could provide water supply under Chapter 6119 of the Ohio Code. Accordingly, new legislation would not be required for existing wastewater institutions to provide drinking water. (The institutional impact of reusing wastewater in this manner would depend upon whether the institutions responsible for wastewater treatment will also be responsible for water supply and whether treated wastewater enters supply systems directly or indirectly.)

For example, if different agencies are involved in wastewater treatment then working agreements between the two institutions would be necessary. However, such agreements would be necessary only if treated waste water is supplied directly to the agency responsible for water supply. Such agreements would not be required if treated water is released into water courses upstream from water supply intakes unless the discharge of treated water needs to be regulated in order to provide a minimum flow at the water supply intake.

In summary, institutional modifications are necessary if existing wastewater management agencies are to integrate wastewater management with total resource management. Existing institutions must be granted new authorities or cooperative arrangements with other resource management agencies must be developed if they are to capitalize upon the potential for the reuse of water and its waste constituents for such beneficial uses as crop production, recreation, land reclamation, power production and water supply.

D. Impact of Land Requirements

The fourth major institutional impact is the result of the fact that all alternatives will have an affect upon substantial land areas. The institutional impacts stem either from the acreage requirements of the alternatives' individual components or from a general need shared by all alternatives for increases land-use regulation.

The treatment plant alternatives do not raise major institutional problems for several reasons. Local wastewater management institutions are presently authorized to acquire and sell real estate. Accordingly, these institutions should have few legal problems in acquiring additional acreage needed for new facilities or disposing of excess real estate created by the abandonment of existing facilities. However, the disposal of surplus land should be coordinated with the plans of other public agencies.

On the other hand, the spray irrigation alternatives do present major institutional problems. First, wastewater management agencies within the Three Rivers Area may have difficulty in acquiring the large tracts of land outside the study area required for spray irrigation sites. First, a legal question may arise as to whether the authority of existing institutions to acquire real estate can be interpreted as authorizing the acquisition of such large tracts of land required for land treatment sites. (Note, the Ohio Code does provide for "sewage farms," but does not define what this means). Use of the spray irrigation sites will also have significant financial impacts. Acquisition of the land in fee simple for land treatment sites would have several financial impacts which would not occur if the land remained privately owned. First, if the land were acquired in fee there would be a substantial capital investment which the other arrangements would not require. The other arrangements would permit an annual lease payment for use of the land. Second, if land is bought outright, there would be a major impact on the tax rolls of the polical subdivisions in which the sites are located as ownerships changes from the public to the private sectors. Third, acquisition in fee simple could increase the manpower needs of institutions responsible for managing the land. If the land is publicly owned and operated, a public agency would be responsible for management of the land, which could include the purchase of farming equipment and the marketing of crops.

If the land is acquired in fee, implementation of the system could be delayed by the time required for the condemnation process. On the other hand, if the land is to remain in private ownership, there will be substantial legal problems in working out contractual arrangements for the disposal of sewage on the land. For example, there must be sufficient incentive to the land owners to keep the land in agricultural use. Another problem, which arises whether the

land is publicly or privately owned, is the need to relocate displaced persons. This requirement could place a large burden on existing agencies within the study area which would be involved in relocation efforts.

As noted above, a second set of institutional impacts arises because all of the alternatives require a level of land-use regulation which substantially exceeds that currently in effect within the study area. In order for any regional wastewater management system to operate effectively, increased land-use regulation is necessary. First, land-use controls are necessary in order to allow wastewater management systems to function at their designed capacity. Second, regulation is needed to preserve the sites actually required for wastewater treatment, storage sites, and other related facilities. Development of these areas must be controlled if the system is to operate as planned.

To prevent wastewater systems from being overloaded, enactment and enforcement of non-structural constraints such as zoning regulations, erosion control regulations, water meters, and health and building codes are necessary. The basis for these constraints already exists in regulatory powers available to local governments. In many cases these powers are not exercised especially in terms of common regional objectives. What is needed in order to promote effective wastewater management is cooperation between those agencies responsible for wastewater management and those responsible for exercise of the regulatory powers and an effective program which actually achieves control.

In addition, preservation of areas required for treatment facilities requires cooperation between wastewater agencies and other public institutions which own land. Wastewater disposal systems must be designed in coordination with other types of public and/or land use and vice versa.

PART VI

FINAL INSTITUTIONAL EVALUATION OF N3 ALTERNATIVES

I. Introduction

This memorandum presents an evaluation of the institutional impacts of the three wastewater management alternatives being considered for the Cleveland-Akron and Three Rivers Watershed Area. It also discusses alternative institutional arrangements which could be used in implementing the alternatives. This memorandum has been developed to assist the Buffalo District, Corps of Engineers in screening and evaluating the technical alternatives which, from a total resource management viewpoint, provide the best solution to the wastewater management problems within the study area.

The memorandum contains four major sections. First, there will be a brief summary of the major impacts of the three alternatives. Second, there will be a more detailed discussion of the impacts identified in the summary. Third, there will be a discussion of alternative institutional arrangements which would implement the technical proposals. Finally, the institutional arrangements will be evaluated in terms of the extent to which they meet general institutional criteria.

II. Summary

The major institutional impacts of the three technical alternatives are the result of four factors which are summarized as follows:

A. Financial

The N3 alternatives, in terms of total annual costs substantially exceed the current level of expenditures upon wastewater within the study area. The extent to which local and state institutions will be able to finance each alternative is highly contingent upon the ability of the federal government to sustain over a long period of time the 75% contribution toward capital costs. To a lesser extent, it is also dependent upon the ability of local institutions to secure a contribution from industry toward capital costs.

B. Regionalization

All three alternatives require a greater degree of regionalization and integration of systems than currently exists within the study area. (For purposes of this memorandum, the term "regional" is used broadly to indicate the involvement of more than one unit of government in wastewater management. For example, an institution is considered regional if it involves two or more municipalities and a sewage treatment plant would be considered regional if it treats the sewage of two or more municipalities). To the extent to which technical alternatives are regionalized, institutional arrangements capable of planning, financing, constructing and operating regional systems must be developed.

C. Re-Use

The alternatives integrate wastewater management with other resource (water, land, people) programs. Examples of this integration are control, recreation and power plant siting. Accordingly, institutional arrangements must be designed to provide sufficient authority to assure that wastewater management programs can fully capitalize upon the resource integration opportunities of the technical alternatives.

D. Land

In order for any of the three alternatives to operate effectively, new institutional emphasis upon land-use regulation is necessary. Although the land impact varies among alternatives, in order to control suburban build-up, to control storm runoff, and to protect treatment sites, supplementary land utilization programs must be developed and implemented.

III. Institutional Impacts

A. Impacts of Financial Requirements

Each of the N3 alternatives will require a financial commitment that is likely to exceed the financial resources of the study area. This can be illustrated by comparing the current level of expenditures for wastewater activities in the study area to the plan requirements. In 1969, wastewater capital facility expenditures throughout the entire State of Ohio approximated \$90 million. For all purposes (wastewater, schools, roads, etc.), the state expended \$1.413 billion on capital facilities. Ohio, in recent years, through the Ohio Water Development Authority has assisted in the prefinancing of federal and local cost-sharing of selected projects. As of December 1, 1972, the Authority had obligated approximately \$305 million (in 3 years).

In comparison, the least costly of the N3 alternatives, the all-water based plan A which treats to state standards, would require an annual capital expenditure of \$35 million for wastewater and \$50 million for stormwater alone. Combined, these costs approach current spending levels for the entire state. In addition, it is important to note that the capital costs of all plans have been reduced by incorporating existing facilities to the maximum extent feasible, into the proposed systems.

Plan B, combined land/water with all treatment taking place within the Three Rivers Watershed Basin. Plan C is also a combined system, but with a land emphasis, and both plans treat wastewater to Level II standards. The capital costs on an annual basis for each of these alternatives reflects the relatively high expense of meeting the newly-enacted Federal Water Pollution Control Act Amendments of 1972. For example the annual capital costs of treating wastewater under Plan B is \$33 million; for stormwater alone it is \$48 million. The comparable costs of Plan C are \$42 million and \$36 million. Ohio, in order to meet the costs of a combined wastewater-stormwater system as described in Plans A, B and C would have to sustain a high level of wastewater financing for many years; this level is far above current expenditures for wastewater.

Total capital requirements are an important indicator of the initial burden which must be sustained by state and local institutions. The reason is that such costs are generally paid at the time the facility is constructed with borrowed funds (bonds), and the repayment of this debt is spread over a number of years. The relevant Ohio institutions, if they are to finance such costs, must have adequate constitutional and statutory authority to undertake financing of the magnitude required by each of the N3 alternatives.

In the past, Ohio and most other states have relied upon revenue bond financing because this type of bond, which is repaid through user charges, is generally free of constitutional and statutory restrictions. While this factor makes revenue bonds an attractive financing mode, the relatively high interest rate that must be paid by the borrower when incurring revenue bond debt results in an increase in the cost of the project.

It is important to note that certain provisions of the recently-enacted Federal Water Pollution Control Act Amendments of 1972 require that a system of user fees be established to meet operation, maintenance and replacement costs attributable to all users of the facility. However, the local share of capital costs may be financed through revenue bonds which are serviced with user fees or general obligation bonds which are paid off from general taxation.

While general obligation bonds enable the borrower to raise funds at lower cost (a lower interest rate), they are also constrained by local code provisions as well as by the state legislature and constitution. These constraints establish a ceiling on indebtedness, which, if it is to be changed, can be done so only with the approval of the voters. Increased indebtedness will necessitate a commensurate rise in taxes on property unless the tax base is broadened. Increased indebtedness along with higher interest rates will result in property tax increases.

If any of the N3 alternatives capital cost is to be financed primarily through general obligation debt, then there are likely to be substantial delays and administrative problems in raising debt ceilings and in securing voter approval for its issuance. By contrast, revenue bonds will be free of such restrictions, however, they will increase the cost of the project. In either case, bond market conditions vary almost capriciously, and the placement of a debt issue of the magnitude required by Plans B and C is unprecedented for a wastewater management project in Ohio.

Capital costs are a measure of the aggregate amount of indebtedness which must be incurred to finance a wastewater system. It is important to also examine the average yearly cost (which includes capital, O&M and replacement costs), because this is a measure of the revenues which must be raised annually within the study region.

Plan A has the lowest annual requirement of \$81 million for wastewater and \$60 million for stormwater. These components are not grossly out of line with what Ohio is presently spending for the entire state. Three Rivers Watershed area, however, covers only a portion of the state and about 20 percent of the population. Plan B with annual wastewater and stormwater costs of \$77 million and \$58 million; and Plan C with requirements of \$85 million and \$44 million will place a lesser but still significant burden on existing institutional structures.

Institutional Arrangements

Current legislation authorizes the federal government to provide 75% of the capital costs for wastewater projects. However, the constantly-changing ordering of federal priorities and the relatively low level of funding envisioned in the environmental area will not assure that Ohio will receive a federal contribution that is of the magnitude required under plans A, B or C.

Industry is required to pay back to the federal sector the portion of the federal share of capital cost that is attributable to industry in the ratio of the cost of treating industrial waste to the costs of treating all wastes. Additionally, local recipients of federal assistance could implement a system of user fees that results in a similar contribution toward the local share. In the absence of an engineering estimate of the percentage of capacity or costs attributable to industry, it is not possible to determine the percentage of the local share which may be recouped from industrial users. Thus, the local capital cost requirement may be 25% (or less if industry is required to pay a share of local costs) if the federal government contributes funds freely. However, the scarcity of resources in this area makes such assumptions tenuous at best.

While the federal government may incur up to 75% of the capital cost, the local institutions are required to meet all operation, and maintenance costs through a system of user fees (in federally-financed projects). For wastewater alone, these annual costs do not vary much among alternatives; they are \$47 million (Plan A), \$44 million (Plan B) and \$38 million (Plan C). Similar significant differences are evidenced for stormwater maintenance costs (alone); \$18 million (Plan A), \$9 million (Plan B) and \$8 million (Plan C).

B. Impacts of Regionalization Requirements

All of the alternatives require a greater degree of regionalization than presently exists within the study area. However, not all of the alternatives require the same degree of regionalization. Because the different components of the proposed plans can remain localized or be regionalized independently of other components, the regionalization of the different components will be discussed separately.

1. Treatment Plants

At this time, there are more than 120 treatment plants in operation in the Three Rivers Area. Alternatives A, B and C would utilize 25, 30, and 25 treatment plants respectively. The fact that each alternative would require the elimination of almost 100 plants indicates a level of regionalization substan-

tially higher than the existing level. While Alternatives A, B, and C do use different numbers of plants, these differences are not as significant as the fact that all alternatives will eliminate almost 100 existing facilities.

2. Land Treatment

The land treatment system used by Alternative B requires substantially less regionalization than does Alternatives C's land disposal system (Alternative A does not utilize land treatment sites). Alternative B would use a series of relatively small land treatment sites within the middle and upper portions of the basins, whereas Alternative C would also utilize a single large site to the west of the study area for sewage from the shoreline and lower basin areas.

3. Storm Water Treatment

Data not available.

4. Sludge Disposal

There is variation among the alternatives with regard to the extent to which sludge disposal is regionalized. Under Alternative A, each plant would incinerate its sludge and dispose of the residue at local land-fill sites. Alternative B and C require a more regionalized sludge disposal system because under B, 6 plants would share a pipeline and pump sludge to strip-mined areas and under C, 9 plants would use the pipeline.

5. Summary

The main impact of regionalization falls upon local institutions which are involved in the construction and operation and maintenance of treatment facilities. The number of plants used determines the number of institutions which will have a facility located within their jurisdiction. As the number of plants is reduced, the opportunity for consolidating existing institutions increases. Furthermore, the number of plants utilized determines the number of institutions affected by the abandonment of existing plants. As the number of abandonments increases, so do the institutional problems associated with assuming the outstanding debts and compensating the owners of abandoned plants. The number of plants utilized also affects interrelationships among existing institutions. As the number of plants is reduced, the geographic area and number of political sub-divisions served by each plant increases. This creates a need for institutional arrangements between areas with treatment plants and those without such facilities.

As noted above, the treatment plant systems utilized by the three alternatives require roughly the same level of regionalization over and above the existing system. Accordingly, the alternatives present the same opportunities for consolidating existing institutions and the same problems associated with the abandonment of existing facilities.

The regionalized spray irrigation system used by Alternative C will create impacts outside of the study area because it requires land sites to the west of the Three Rivers Watershed. Alternative C will require new institutional arrangements to allow residents of the disposal area to participate in the design, construction and operation of the system and new arrangements for the acquisition of the land treatment sites. The regionalized sludge disposal system, which would use a pipeline from the study area to the strip-mined lands, would require at least some existing institutions to interconnect their sludge disposal conveyance systems. The fact that some conveyance systems would be interconnected would require some type of operational and institutional mechanisms to regulate the use of common pipelines.

In summary the levels of regionalization required by the different alternatives do not provide a clear basis for differentiating among Plans A and B from an institutional perspective. Both of these alternatives require an increased level of regionalization, but none requires substantially more than the other. Plan C, on the other hand, involves much more area and many more institutions outside the Three Rivers Watershed area and thus, from a regional perspective, will be more complicated to implement.

C. Impact of the Re-Use Requirements

Another feature of the 3 wastewater management alternatives being considered for the Three Rivers Area is that the alternatives integrate wastewater management with natural resources management in general. The technical alternatives accomplish this integration by planning for the re-use of wastewater and wastewater treatment by-products which in turn results in institutional impacts.

1. Crop Production

Alternatives B and C would cause significant impacts within and outside the Study Area as the alternatives would use spray irrigation sites for crop production. The impacts of using spray irrigation sites for crop production would vary depending upon whether the public or private sector is responsible for producing crops. If the public is to be responsible, institutional arrangements will be needed to manage the farm land and

market corps. If the private sector is to be responsible, an institutional arrangement will be required to oversee farm and crop operations. Furthermore, operation of spray irrigation sites will have to be coordinated with appropriate Federal agencies to avoid possible conflict with Federal farm crop and soil programs now in operation.

2. Recreation

While all alternatives will provide some recreational opportunities, Alternatives B and C provide greater opportunities than does Alternative A. All alternatives would cause the abandonment of treatment plants which could be converted to mini-parks and would provide treated water for stream flow augmentation. In addition, the storage reservoirs and spray irrigation sites required by Alternatives B and C might be used for parks, open-space and green-belt areas. An institutional structure will be required to provide the necessary recreational facilities.

3. Land Rehabilitation

Alternatives B and C would provide sludge for land reclamation and soil enrichment. Sludge from some treatment plants would be piped to strip-mined areas in southeastern Ohio while other plants would provide sludge for application on agricultural lands. Both of these arrangements will require institutional arrangements with land-owners and coordination with other agencies involved in land-use.

4. Power Production

Another synergistic use of wastewater would be to utilize the storage lagoons at spray irrigation sites as heat sinks from industrial and/or electric utility installations. Only Alternative C would provide this opportunity. If water is to be sold or leased to private users, a marketing system and coordinative mechanisms will be necessary.

5. Summary

The re-use requirements of Plan B will have a larger institutional impact than either Plan A or C because Plan B provides for a fuller range of reuse techniques. Plans A and C on the other hand do provide comparable reuse techniques but at a diminished level than Plan B. Accordingly, the analysis of the impacts of the re-use requirements provides a basis for distinguishing between Alternative B on the one hand and Alternatives A and C on the other hand.

D. Impact of Land Requirements

The fourth major institutional impact is the result of the fact that all alternatives will have an affect upon substantial land areas. The institutional impacts stem either from the acreage requirements of the alternatives' components or from a general need shared by all alternatives for increased land-use regulation.

Alternative A, the treatment plant alternative does not raise major institutional problems because of acreage requirements. Existing wastewater management institutions are authorized to acquire and sell real estate and therefore should not have problems in acquiring additional acreage needed for new facilities or in disposing of excess real estate created by the abandonment of facilities.

On the other hand, the acreage requirements of Alternatives B and C do create institutional impacts. First, wastewater management agencies within the Three Rivers Area may have difficulty in acquiring the large tracts of land outside the study area required by Alternative C. Second, a legal question may arise as to whether the authority of existing institutions to acquire real estate can be interpreted as authorizing the acquisition of the large tracts of land required for land treatment sites. Use of the spray irrigation sites will also have significant financial impacts. Acquisition of the land in fee simple for land treatment sites would have several financial impacts which would not occur if the land remained privately owned. First, if the land were acquired in fee there would be a substantial capital investment which the other arrangements would not require. The other arrangements would permit an annual lease payment for use of the land. Second, if land is bought outright, there would be a major impact on the tax rolls of the political subdivision in which the sites are located as ownerships change from the private to the public sectors. Third, acquisition in fee simple could increase the manpower needs of institutions responsible for managing the land. If the land is publicly owned and operated, a public agency would be responsible for management of the land, which could include the purchase of farming equipment and the marketing of crops.

If the land is acquired in fee, implementation of the system could be delayed by the time required for the condemnation process. On the other hand, if the land is to remain in private ownership, there will be substantial legal problems in working out contractual arrangements for the disposal of sewage on the land. For example, there must be sufficient incentive to the land owners to keep the land in agricultural use. Another problem, which arises whether the land is publicly or privately owned, is the need to relocate displaced persons. This requirement could place a large burden on existing agencies within the study area which could be involved in relocation efforts.

As noted above, a second set of institutional impacts arises because all of the alternatives require a level of land-use regulation which substantially exceeds that currently in effect within the study area. In order for any regional wastewater management system to operate effectively, increased land-use regulation is necessary. First, land-use controls are necessary in order to allow wastewater management systems to function at their designed capacity. Second, regulations are needed to preserve the sites actually required for wastewater treatment, storage sites, and other related facilities. Development of these areas must be controlled if the system is to operate as planned.

To prevent wastewater systems from being overloaded, enactment and enforcement of non-structural constraints such as zoning regulations, erosion control regulations, water meters, and health and building codes are necessary. The basis for these constraints are already existing in regulatory powers available to local governments. In many cases these powers are not exercised especially in terms of common regional objectives. What is needed in order to promote effective wastewater management is cooperation between those agencies responsible for wastewater management and those responsible for exercise of the regulatory powers and an effective program which actually achieves control.

In addition, preservation of areas required for treatment facilities requires cooperation between wastewater agencies and other public institutions which own land. Wastewater disposal systems must be designed in coordination with other types of public and/or land use and vice versa.

In summation, while all of the alternatives will have a similar impact because of the general need for land-use regulation, Alternative B and C will have a greater impact than Alternative A because they will utilize spray irrigation sites.

III. Alternative Institutional Arrangements

This section of the memorandum is divided into two parts. First, there will be a discussion in general terms of possible wastewater management institutions for the Cleveland-Akron and Three Rivers Watershed Area. This will include a discussion of financing techniques. Second, there will be a more specific discussion of alternative institutional responses to the impacts of the technical alternatives which were identified in Section II of the memorandum. These are responses which must be made irrespective of the types of overall institutional approach which is followed. The institutional arrangements which are outlined below are based upon the presumption that the existing institutional structure should be used as much as possible and that new concepts

should be introduced only where existing institutions or modifications thereto would be unable to implement the technical alternatives.

B. General Discussion

Following the presumption discussed above, there are two basic types of institutional arrangements which could implement the technical plans. The first approach is to emphasize the use of existing wastewater institutions and will be referred to as the local approach. The second approach will move away from local institutions towards a more regionalized structure and will be referred to as the regional approach.

The Local Approach

In light of the institutional impacts identified above, it is clear that existing institutions cannot implement the technical proposals without some modifications. Under the local approach, these would be kept to a minimum.

Some of the most significant modifications under the local approach are required by the fact that each of the alternatives will eliminate approximately 100 existing treatment plants. The elimination of plants will obviate the need for existing institutions which will no longer have treatment facilities to operate. The elimination of existing plants also means that the remaining plants will serve larger geographic areas and a larger number of political sub-divisions.

Existing institutions could respond to the elimination of treatment facilities in two ways. Institutions which will continue to have plants could enter into contractual arrangements to treat the sewage of political subdivisions whose facilities are eliminated or expand their boundaries to include those areas which will no longer have their own facilities. The ability of existing institutions to adopt to the regional requirements of the technical alternatives depends largely upon the institutions' geographic flexibility. The different types of agencies involved in the operation of treatment plants (municipalities, counties and the Cleveland Regional Sewer District) have different levels of geographic flexibility. Ohio municipalities serve the area within their boundaries and are permitted to treat the sewage of other municipalities on a contractual basis. Thus, municipalities have limited geographic flexibility. Counties are restricted in that they may not provide sewer service within municipalities unless authorized by the municipal corporation to do so. However, county sewer districts may treat the sewage of corporations, individuals or public institutions outside of the district's boundaries on a contractual basis. Under Chapter 6119 of the Ohio Code, the Cleveland Regional Sewer District may include the area within the unincorporated part of one or more contiguous counties, within one or more municipalities or both.

Other institutional reforms would also be required by the need to regionalize. Cooperative agreements would be needed to regulate the use of shared facilities such as conveyance systems, storage facilities and spray irrigation sites and to provide for assumption of the debts of abandoned facilities. Furthermore, because of the regional nature of the technical alternative, some type of agencies or agency with areawide authority and jurisdiction would be needed in order for the system to function effectively. Such an agency should have responsibility for the overall planning of the systems and authority to regulate operation of the regional system.

At the present, there are several regional institutions in the Three Rivers Area, but none sufficient authority and jurisdiction to effectively control the operation of a wastewater management system for the entire area. County planning commissions such as the Cuyahoga and Tri-County Regional Planning Commissions do not have authority to require member municipalities to accept regional plans. The Three Rivers Watershed District has responsibility for developing an areawide water resources plan, but currently lacks authority for implementation or enforcement of such plans.

In order for these regional planning institutions to fulfill the requirements of regionalization, several modifications would be necessary. First, there is a need to develop uniform objectives for wastewater management in the Three Rivers Area and to coordinate enforcement of these objectives. Second, regional planning agencies need authority to implement regional water and land resource plans or to coordinate the implementation of plans by local institutions. If local agencies cannot be required to coordinate the planning, construction and operation of their facilities at the regional level, then implementation of any technical alternative will be difficult.

From a financing perspective, the local approach would place the burden for raising the necessary financial resources on a combination of municipalities, counties, special districts and the state. In essence, it is the financing arrangement that currently exists. Each unit of government would be responsible for modifying local restrictions on incurring indebtedness as necessary and would also have responsibility for administration. As localities were found to be unable to meet the financial requirements, OWDA would expand its prefinancing role.

The Regional Approach

The regional approach involves more substantial modifications to the existing institutional structure and would involve the elimination of many of the small municipal and county sanitary engineering departments which presently exist within the Three Rivers Watershed Area. The regional approach could be implemented in such a way to achieve several different levels of regionalization. On the one hand, a single regional sewer district could be formed which would have jurisdiction over the entire area and for implementing the technical solution. On the other hand, several regional sewer

districts could be formed within the study area. For example the existing Cleveland Regional Sewer District could serve the lower basin and shoreline area and a new Akron Regional Sewer District could be organized to serve the upper basin areas. The number of sewer districts which would be used under the regional approach would to a large extent be determined by the way in which the study area can be sub-divided into logical service areas.

Depending upon the number of sewer districts utilized, the regional approach will still require the use of cooperative arrangements between institutions. Such agreements will be needed to regulate the use of shared facilities such as conveyance systems and to insure that implementation of the technical alternative is coordinated.

If the regional approach is to be followed, Chapter 6119 of the Ohio Code provides appropriate enabling legislation for agencies which would have the capacity to operate regional systems. Under the provisions of Chapter 6119, a regional sewer district may include the area in the unincorporated part of one or more contiguous counties, or in one or more municipal corporations or both. The district may construct, acquire and operate and maintain sewers and disposal facilities, acquire real and personal property by condemnation within and outside of the district, sell sewage by-products, provide treatment for areas outside the district, and regulate the construction and connection of sewage lines.

In terms of finance, the regional approach would be a marked departure from the current pattern in that it would abandon the fragmented approach and create one or several large, special-purpose wastewater financing districts. While this would minimize local decision-making control, it would centralize administration and solidify the local financing base.

The special district(s) would have the responsibility for establishing a system of user fees to raise revenues to cover operation, maintenance and replacement costs. Additionally, it could back bond issues with taxing authority or a system of user charges. By being able to draw from the resources of a large number of jurisdictions within its boundary, the district would very likely be able to obtain a favorable credit rating, thereby reducing the cost of borrowing money.

C. Responses to Specific Impacts of the Technical Alternatives

The discussion above has outlined two general institutional approaches to the implementation of regional wastewater management systems in the Three Rivers Watershed Area. This sub-section of the memorandum will focus on institutional arrangements which must be made regardless of whether the local or regional institutional approach is adopted. These adjustments are the result of the re-use requirements of the technical proposals.

The use of spray irrigation sites within or outside of the study area will require several institutional modifications. If the public sector is to be responsible for the management of the sites, either new public institutions would have to be created with authority to raise and market crops or the enabling legislation of existing institutions would have to be amended to allow such activities. An exception to the above statement would be the case of municipal corporations which are authorized by the Ohio Code to purchase land outside their limits for sewage farms (the Code does not define the term "sewage farm"). If the operation of treatment sites is to be a private responsibility, then wastewater management institutions would need authority to supervise and regulate the operation of the sites.

The use of a spray irrigation site outside of the study area requires a special institutional response because of the need to incorporate citizens from outside of the Three Rivers Watershed Area in the wastewater management decision-making process. The enabling legislation of existing institutions would require an amendment to allow representatives of citizens living near such spray irrigation sites to sit on policy-making boards. In order to provide for such participation, it is probable that citizens outside of the study area will be given a disproportionately high number of representatives due to the need to secure local cooperation and their low number relative to the more populated urban area.

Institutional modification will be necessary in order to capture the recreational benefits of the technical plans. Either the enabling legislation of existing wastewater management agencies could be amended to allow them to provide recreational services or such agencies would have to establish cooperative arrangements with other agencies which have authority to develop and operate recreational facilities.

The use of strip-mined areas for sludge disposal will require contractual arrangements with land owners and land reclamation projects should be coordinated with public agencies responsible for land-use planning. In order to provide wastewater for power plant cooling, the institution responsible for operation of the spray irrigation site will need authority to lease or sell water

IV. Evaluation of Institutional Arrangements

In order to evaluate the local and regional approaches to wastewater management institutional design a list of institutional criteria has been developed. These criteria, some of which apply to public agencies in general and some of which apply to institutions with the capacity to implement regional wastewater management systems, are as follows:

A. Economic Criteria

1. Ability to internalize externalities:

There should be control over the sources of all effluent affecting a wastewater treatment program such that there are no unregulated costs imposed upon the program. In other words, the institutions must have some means to affect or control effluents which are produced outside its immediate service area.

2. Ability to achieve economies of scale:

The institution should have sufficient geographic and functional jurisdiction to reduce the costs of wastewater treatment. Given a population density of sufficient size, it follows that the larger the service area, the lower the unit costs will be.

B. Administrative Criteria

1. Control of causal and affected areas:

The institution should have sufficient geographical jurisdiction to effect political control over contiguous or surrounding areas which cause wastewater problems and which are affected by treatment programs. This differs from the criterion of internalizing externalities in that the focus is on including the governmental unit which produces, or is affected by, those externalities.

2. Ability to respond to changing needs and conditions:

The institution should have sufficient service, functional, temporal and areal flexibility to adapt to changing circumstances.

3. Adequate authority to implement decisions:

The institution must have the authorities required of a wastewater management agency by the Areawide Waste Treatment Management Sections of the Federal Water Pollution Control Act Amendments of 1972.

4. Ability to facilitate and achieve productive cooperation among federal, state, local and private interests:

5. Ability to establish regional visibility:

Regional visibility is necessary in order for the institution to cultivate political and legislative support for its programs and budgets.

6. Ability to attract adequate executive leadership and staff:

7. Adequate financial resources:

Adequate revenue is necessary in order for an institution to exercise its legal authority. Bonds, user charges, taxes and revenue sharing are ways of raising revenue which could be utilized.

8. Ability to consider alternatives

If the institution is able to consider alternate methods of implementing pollution abatement programs, it will be less likely to become self-serving and single mission-oriented.

9. Compatibility with existing governments:

The institution should not duplicate services being performed adequately by existing governmental units and should be compatible with the federal system of government.

C. Political Criteria

1. Ability to promote meaningful public participation in planning and decision making:

By involving citizens in the decision-making process, citizens are less inclined to feel threatened by the decisions and more likely to provide necessary political support.

2. Political accountability and responsiveness:

The most important political criterion for any democratic government is that those whom it purports to govern should have access to and ultimate control over it.

3. Responsibility for a spectrum of services:

The more varied the functional scope of an institution, the more the opportunity to make trade-offs and compromises necessary to accomplish the major objectives of the institution.

4. Ability to attract two party interest:

The institution should have enough power, prestige, exposure, and pecuniary incentives to attract qualified candidates from all of the affected and interested parties.

5. Ability to promote a consensus among decision-makers:

The institution must create conditions which facilitate agreement on objectives and approaches among members of the agency's decision-making body.

The matrix below displays the extent to which the local and regional approaches meet the criteria listed above. The number 1 indicates that the approach comes close to meeting the criteria, the number 2 indicates that the approach is partially successful in meeting the criteria, and the number 3 indicates that the approach fails or is only minimally successful in meeting the criteria.

CRITERIA	APPROACHES	
	Local	Regional
Economic		
Ability to internalize externalities	3	1 or 2 depending on number of districts
Ability to achieve economies of scale	3	1
<u>Administrative</u>		
Control of causal and affected areas	3	1
Ability to respond to changing needs or conditions	2	2
Adequate authority to complement decisions	1	1
Ability to achieve cooperation	1	1
Ability to establish regional visibility	2	1
Ability to attract adequate executive leadership and staff	2	1
Adequate financial resources	3	1
Ability to consider alternatives	2	1
Compatibility with existing governments	1	2
<u>Political Criteria</u>		
Ability to promote public participation	1	2
Political accountability and responsiveness	1	2
Responsibility for a spectrum of services	1	2
Ability to attract two party interest	1	2
Ability to promote a consensus among decision makers	3	1